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DAS Data Requirement 11

Acceptance Test Plan and Procedures for the Demand Access System (DAS)

Volume II: Verification Procedures Appendices

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CHANGE RECORD

CHANGE RECORD			
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-	Initial Issue per ECF-AQ0079	10/17/01	W. E. Kearns
A	Updated to include FAT/SAT procedures per ECF-AQ0085	11/16/01	W.E. Kearns
B	Updated to include accepted NASA comments from 11/6/01 per ECF-AQ0092	3/15/02	W.E. Kearns

PREFACE

DRL-11 is divided into 2 volumes as indicated below:

Volume I:	System Verification Plan
Volume II:	System Test Procedures.

This document herein is Volume II.

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Exhibit A-1 presents the SRD mapping to the test case where the requirement is verified, listed in requirement ID order. Exhibit A-2 presents the SRD requirement traceability ordered by test case.

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
1	3.1.1.a	The DAS shall process DAS Customer system access identification information as part of DAS logon procedures.	S			
2	3.1.1.1.a	The DAS shall accept DAS Customer set(s) of resource configuration parameters.		Q1.1		C
3	3.1.1.1.b	The DAS shall accept updates to existing sets of DAS Customer configuration parameters.		Q1.1		C
4	3.1.1.1.c	The DAS shall report to DAS Customers the contents of the configuration parameters currently retained.		Q1.1		C
5	3.1.2.1.a	The DAS shall collect and log status on each DAS Customer's allocated resources.		Q1.2		C
6	3.1.2.1.b*	The DAS shall provide periodic, unsolicited summarized resource allocation status reports to each DAS Customer.		Q1.2		C
7	3.1.2.1.c	The DAS shall provide periodic, unsolicited summarized resource allocation status reports to the DAS LCM.		Q1.2		
8	3.1.2.2.a	The DAS shall accept DAS Customer requests for resource allocation planning information.		Q1.1		C
9	3.1.2.2.b	The DAS shall provide resource allocation availability reports to a DAS Customer for planning such that specific resource allocation information of other Customers is not compromised.		Q1.1		C
10	3.1.2.2.c	The DAS shall provide resource availability data to the DAS LCM.		Q1.1		
11	3.1.2.2.1.a	The DAS shall provide DAS Customers with the option of specifying which TDRS(s) is (are) to be used in resource allocation service request.		Q1.1		C
12	3.1.2.2.1.b	The DAS shall verify the validity of the DAS Customer's requests for TDRS assignments based upon visibility.		Q1.1		C
13	3.1.2.2.1.c	The DAS shall use ephemeris data to automatically determine the visibility status of a TDRS.		Q1.1		C
14	3.1.2.2.1.d	The DAS shall automatically construct the time windows within a DAS Customer specified time interval in order to identify when a TDRS is visible to a DAS Customer's emitter.		Q1.1		
15	3.1.2.2.2.a	The DAS shall automatically assess resource allocation data to determine the allocation status of all DAS resource assets.		Q1.1		
16	3.1.2.2.2.b	The DAS shall automatically identify which DAS resource assets are available for allocation at any given time.		Q1.1		
17	3.1.2.2.2.c	The DAS shall automatically construct the time windows within a DAS Customer specified time interval that identifies when DAS resource assets are available for allocation.		Q1.1		
18	3.1.2.2.2.d	All DAS resources shall be shared to fulfil allocation requests for dedicated and non-dedicated Customers		Q1.1		
19	3.1.2.2.2.e	The DAS shall automatically assess the availability of resources for non-dedicated Customers use based upon the resources that are available after fulfilling dedicated Customer requests.		Q1.1		

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20	3.1.2.2.2.f	The DAS shall combine emitter visibility and resource assets availability information to determine allocations that meet a DAS Customer request.		Q1.1		
21	3.1.2.2.2.g	The DAS shall provide a report to the DAS Customer, which summarizes the times when planning request constraints can be realized.		Q1.1		C
22	3.1.2.3.1.a	The DAS shall accept DAS Customer requests for resource allocations.		Q1.2		C
23	3.1.2.3.1.b	The DAS shall automatically allocate resources for the DAS Customers who request resource.		Q1.2		C
24	3.1.2.3.1.c	The DAS shall ensure that the allocation of resources for Non-Dedicated Customers is never in conflict with the allocation of resources for Dedicated Customers.		Q1.2		C
25	3.1.2.3.1.d	The DAS shall automatically assign resources from the shared pool of DAS resources to non-dedicated Customers when the resources are not required to fulfil dedicated Customers requests.		Q1.2		C
26	3.1.2.3.1.e	The DAS shall automatically assign TDRS satellite(s) to a resource allocation request if no specific TDRS satellite(s) is(are) designated in the DAS Customer's request.		Q1.2		C
27	3.1.2.3.1.f	The DAS shall log the resource allocation time intervals for each DAS asset.		Q1.2		
28	3.1.2.3.1.g	The DAS shall automatically make TDRS to TDRS transition assessments that will occur during a service as needed to support the assigning of DAS assets to satisfy each DAS Customer resource allocation request.		Q1.2		C
29	3.1.2.3.1.h	The DAS shall provide status to the DAS Customer that reports the action taken as a result of the processing of resource allocation request.		Q1.2		C
30	3.1.2.3.1.i	The DAS shall log resource assignment statistics as service accounting data.		Q1.2		
31	3.1.2.3.1.j	The DAS shall support assignment of demodulated signals from multiple emitters in the same beam.		Q1.2		C
32	3.1.2.3.1.k	The DAS shall provide resource assignment data to the DAS LCM.		Q1.2		
33	3.1.2.3.1.l	The DAS shall notify the DAS Customer of any change to a resource allocation request that prevents the DAS Customer request from being supported.		Q1.2		C
34	3.1.2.3.1.m	The DAS shall be capable of removing from the DAS shared resources any resources that are unavailable due to failure or maintenance action.		Q1.2		C
35	3.1.2.3.1.n	The DAS shall reject resource allocation requests that cannot be implemented due to time or resource constraints.		Q1.2		C
36	3.1.2.3.2.a	The DAS shall ensure that a DAS Customer is restricted from modifying requests submitted by other DAS Customers.	S			
37	3.1.2.3.2.b	The DAS shall allow a DAS Customer to modify an accepted request that is pending implementation.		Q1.2		C
38	3.1.2.3.2.c	The DAS shall allow a DAS Customer to modify an on-going request.		Q1.2		C
39	3.1.2.3.2.d	The DAS shall provide status to the DAS Customer that reports the action taken as the result of the processing of modification requests.		Q1.2		C

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40	3.1.2.3.2.e	The DAS shall return DAS allocated assets to the pool of unallocated resources if no longer needed to support Customer resource allocation assignments.		Q1.2		C
41	3.1.2.3.2.f	The DAS shall log the modification of resource assignments.		Q1.2		
42	3.1.2.4.1.a	The DAS shall automatically accept TDRS vector data in accordance with the ICD between the DAS and the WSC, 451-ICD-DAS/WSC.		Q1.3		C
43	3.1.2.4.1.b	The DAS shall support manual entry of TDRS vector data via the DAS LCM.		Q1.3		
44	3.1.2.4.1.c	The DAS shall notify Local Control and Monitor when a TDRS state vector update is overdue.		Q1.3		
45	3.1.2.4.1.d	The DAS shall propagate the last state vector in the existing TDRS ephemeris if a new state vector update is not available.		Q1.3		
46	3.1.2.4.1.e	The DAS shall automatically log TDRS ephemeris.		Q1.3		
47	3.1.2.4.2.a	The DAS shall automatically accept DAS Customer emitter vector data.		Q1.3		C
48	3.1.2.4.2.b	The DAS shall support manual entry of DAS Customer emitter vector data via the DAS LCM.		Q1.3		
49	3.1.2.4.2.c	The DAS shall automatically access an ephemeris for each DAS Customer emitter during resource allocation assessments.		Q1.3		
50	3.1.2.4.2.d	The DAS shall automatically log an orbiting DAS Customer emitter ephemeris.		Q1.3		
51	3.1.2.4.2.e	The DAS shall notify a DAS Customer and the DAS LCM when a DAS Customer state vector update is overdue.		Q1.3		C
52	3.1.2.4.2.f	The DAS shall propagate the last state vector in the existing DAS Customer ephemeris if a new state vector update is not available.		Q1.3		
53	3.1.2.4.2.g	The DAS shall retain Type 8 vector data.		Q1.3		
54	3.1.2.4.2.h	The DAS shall generate an alert to the DAS LCM when TDRS or DAS Customer state vector updates are overdue.		Q1.3		
55	3.1.2.4.3.a	The DAS shall automatically identify outdated ephemerides.		Q1.3		
56	3.1.2.4.3.b	The DAS shall automatically purge all outdated ephemerides.		Q1.3		
57	3.1.3.1.a	The DAS beamformer shall receive the output of the existing WSC System MA System EMC in accordance with the ICD between the DAS and the WSC.		Q4.1		C
58	3.1.3.1.b	The DAS shall support the Pointing beamforming modes.	I1			
59	3.1.3.1.c	The DAS shall support the Adaptive beamforming mode.	I1			
60	3.1.3.1.d	The DAS shall support the Fixed Weight beamforming mode.	I1			
61	3.1.3.1.e	The DAS interface from the EMC to the beamformer(s) shall support one-to-one and one-to-many connections.		Q4.1		C
62	3.1.3.1.f	The DAS beamformer(s) shall switch between EMC output(s).		Q4.1		C
63	3.1.3.1.g	The DAS shall weight and sum signals from selected EMC(s).	I1			

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64	3.1.3.1.h	The DAS shall output the weighted-sum signal(s).	I1			
65	3.1.3.1.i	The DAS shall switch out any of the element channels upon request.	I1			
66	3.1.3.1.j	The DAS shall automatically null interfering signals, when in adaptive nulling mode.	I1			
67	3.1.4.1.a	The demodulator interfaces to the beamformer shall be one-to-one and one-to-many.		Q4.1		C
68	3.1.4.2.1.a	The DAS shall provide Doppler correction for Customer emitters.		Q3/Q9	M	
69	3.1.4.2.1.b	The DAS shall despread the received PN spread signal.		Q3/Q9	M	
70	3.1.4.2.1.c	The DAS shall demodulate the carrier.		Q3/Q9	M	
71	3.1.4.2.1.d	The DAS shall provide recovered carrier for Doppler measurement.		Q3/Q9	M	
72	3.1.4.2.1.e	The DAS shall recover symbol clock and detect the symbol.		Q3/Q9	M	
73	3.1.4.2.1.f	The DAS shall perform convolutional decoding on each baseband symbol stream.		Q3/Q9	M	
74	3.1.4.2.1.h	The DAS shall resolve data phase ambiguity		Q3/Q9	M	
75	3.1.4.2.1.i	The DAS shall consider the Customer oscillator frequency uncertainty and signal dynamics when acquiring the Customer signal.		Q9		
76	3.1.5.1.1.a	Deleted	D			
77	3.1.5.1.1.b	The DAS shall route CCSDS compatible return data. (TBD)	I9			
78	3.1.5.1.2.a	The DAS shall route Customer data to specified destination(s) in accordance with the ICD between the DAS and the DAS Customers.		Q6		C
79	3.1.5.1.2.b	The DAS shall route real-time MA return telemetry data to DAS Customer specified destination(s).		Q6		C
80	3.1.5.1.2.d	The DAS shall route retrieved archived MA return telemetry data to DAS Customer specified destination(s).		Q6		C
81	3.1.5.1.2.g	The DAS shall route Customer service performance data to the DAS Customer specified destination(s) in accordance with the ICD between DAS and the SWSI.		Q6		C
82	3.1.5.1.3.a	The DAS shall retrieve archived return data based on DAS Customer request.		Q6		C
83	3.1.5.1.3.b	The DAS shall update the service accounting statistics with the return data retrieval statistics.		Q6		C
84	3.1.5.1.4.a	The DAS shall establish connection(s) with destination(s) to send return data.		Q6		C
85	3.1.5.1.4.b	The DAS shall automatically re-establish a connection when the connection to a destination is severed.		Q6		C
86	3.1.5.1.4.c	The DAS shall log the transmit status in the DAS Customer service accounting data.		Q6		
87	3.1.5.1.4.d	The DAS shall route real-time and archived return data to a DAS Customer simultaneously, if requested.		Q6		C
88	3.1.5.1.4.e	The DAS shall manage the utilization of the GRGT-to-WSGT DAS allocated aggregate bandwidth to support real-time and archived retrieval supports.		Q6		C
89	3.1.5.1.4.f	The DAS shall manage the utilization of the WSC DAS allocated aggregate bandwidth to support real-time and archived retrieval supports.		Q6		C

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90	3.1.5.1.4.g	The GRGT-to-WSC and WSC DAS allocated aggregate bandwidths shall be values that can be input and modified from the DAS LCM.		Q6		C
91	3.1.5.2.1.a	The DAS shall archive all real-time return data		Q6		C
92	3.1.5.2.1.b	The DAS shall maintain DAS Customer data for the retention duration requested by the DAS Customer.		Q6		C
93	3.1.5.2.1.c	The DAS shall update the resource usage statistics with the resource information, resource requested and time periods for archiving.		Q6		
94	3.1.5.2.1.d	The DAS shall log the storage statistics in the DAS Customer service accounting data		Q6		
95	3.1.5.2.2.a	The DAS shall have a defined maximum allowed storage duration.	A6			
96	3.1.5.2.2.b	The DAS shall automatically remove archived data that has exceeded the limit based on the Customer data distribution specifications.		Q6		
97	3.1.5.2.2.c	The DAS shall automatically remove archived data that has exceeded the pre-set limits defined by configuration management.		Q6		
98	3.1.5.2.2.d	The DAS shall log the purge events in the DAS Customer service accounting data.		Q6		C
99	3.1.6.a	The DAS LCM shall provide an operational interface to monitor, coordinate, control and report the performance of all DAS system components.		Q2		
100	3.1.6.b	The DAS shall accept system control commands from the DAS LCM.		Q2		
101	3.1.6.c	The DAS shall provide system control reports to the DAS LCM.		Q2		
102	3.1.6.d	The DAS shall accept system status requests from the DAS LCM.		Q2		
103	3.1.6.e	The DAS shall report system status to the DAS LCM.		Q2		
104	3.1.6.f	The DAS shall accept DAS Customer authorization parameters from the DAS LCM.	S			
105	3.1.6.g	The DAS shall report the current DAS Customer authorization parameters to the DAS LCM.	S			
106	3.1.6.h	The DAS shall accept requests for service accounting reports from the DAS LCM.		Q2		
107	3.1.6.i	The DAS shall support enabling and disabling adaptive nulling from the LCM.		Q2		
108	3.1.7.1.a	The DAS shall provide status of all components that constitute the DAS to the LCM.		Q4.2		C
109	3.1.7.1.b	The DAS shall perform periodic and continuous statusing of all components that constitute DAS.		Q4.2		C
110	3.1.7.1.c	The DAS shall log all status of all components that constitute DAS.		Q4.2		C
111	3.1.7.1.d	The DAS shall support delogging of all collected status.		Q4.2		C
112	3.1.7.1.e	The DAS shall support printing of delogged status.		Q4.2		C
113	3.1.7.1.f	The DAS shall indicate via an alert to the WSC TOCC when abnormalities are detected in DAS operations and resources.		Q8		C

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114	3.1.7.1.g	The DAS shall provide status indicators on the equipment front panels of all components that constitute DAS.	I2			
115	3.1.7.1.h	The DAS shall provide DAS Customer performance status data to the LCM.		Q4.2		C
116	3.1.7.1.i	Deleted	D			
117	3.1.7.1.j	The DAS shall support the disabling of status of any component that constitutes the DAS from the LCM.		Q4.2		C
118	3.1.7.1.k	The DAS shall support acknowledgement of an alert, allowing the alert to be cleared even though the abnormality still exists.		Q4.2		C
119	3.1.7.2.a	The DAS shall provide performance status data to the DAS Customer, if requested.		Q4.2		C
120	3.1.7.2.b	The DAS shall report the DAS Customer receive frequency in the performance status data.		Q4.2		C
121	3.1.7.3.a	The DAS shall provide service accounting statistics to the DAS LCM.		Q4.2		
122	3.1.7.3.b	The DAS shall allow the definition of a window for the service accounting statistics report to be input from the DAS LCM.		Q4.2		
123	3.1.7.3.c	The DAS shall report the duration of approved requests to the DAS LCM for the window specified.		Q4.2		
124	3.1.7.3.d	The DAS shall report the duration of actual DAS Customer supported events for the window specified.		Q4.2		
125	3.1.7.3.e	The DAS shall report the cumulative service accounting statistics for each DAS Customer for the window specified.		Q4.2		
126	3.1.7.3.f	The DAS shall report the cumulative service accounting statistics for each TDRS for the window specified.		Q4.2		
127	3.1.7.3.g	The DAS shall report the cumulative service accounting statistics for all DAS supported events for the window specified.		Q4.2		
128	3.1.7.3.h	The DAS shall support printing of the service accounting statistics report.		Q4.2		C
129	3.1.8.1.a	The DAS shall place itself in a fully operational return data processing state in response to a system start-up command.		Q4.3		C
130	3.1.8.1.b	The DAS shall retain its current operational state resource allocation.		Q4.3		C
131	3.1.8.1.c	After a restart operations command has been issued, the DAS shall restore service to its last operational state.		Q4.3		C
132	3.1.8.1.d	The DAS shall report incremental status during the start up operations sequence to the DAS LCM.		Q4.3		
133	3.1.8.1.e	The DAS shall shutdown its operations in an orderly fashion in response to a system operations termination command.		Q4.3		C
134	3.1.8.1.f	The DAS shall report incremental status during the shut down operations sequence to the DAS LCM.		Q4.3		
135	3.1.8.1.g	The DAS shall detect changes in the DAS internal configuration data.		Q4.3		C
136	3.1.8.2.a	The DAS shall support adding and removing DAS resources from the pool of shared resources from the DAS LCM		Q4.3		C

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137	3.1.8.2.b	The DAS shall change the allocation of resources assigned to the shared pool of resources without interrupting normal DAS operations.		Q4.3		C
138	3.1.8.3.a	The DAS shall allow only authorized personnel to access DAS Customer authorization data.	S			C
139	3.1.8.3.b	The DAS shall retain Customer authorization data.	S			C
140	3.1.8.3.c	The DAS shall allow authorized personnel to modify DAS Customer identification parameters without interrupting normal DAS operations.		Q4.3		C
141	3.1.8.3.d	The DAS shall allow the addition of new DAS Customers without interrupting DAS operations.		Q4.3		C
142	3.1.8.3.e	The DAS shall allow the deletion of existing DAS Customers without interrupting DAS operations.		Q4.3		C
143	3.1.8.3.f	The DAS shall report the stored Customer authorization data to authorized personnel only.	S			C
144	3.1.9.a	The DAS implementation shall provide for modular expandability of beamformers.	A1	Q4.4	M	C
145	3.1.9.b	The DAS implementation shall provide for modular expandability of demodulators.	A1	Q4.4	M	C
146	3.1.9.c	The DAS implementation shall provide for modular expandability for archiving Customer data.	I9			
147	3.1.9.d	The DAS implementation shall provide for modular expandability for routing Customer data.	I9			
148	3.1.9.e	The DAS implementation shall provide for modular expandability for processing function.	I9			
149	3.1.9.f	The DAS shall provide for modular upgrades to support future CCSDS compatible telemetry formats.	I9			
150	3.2.1.a	The DAS shall report the results of a DAS Customer authorization check within 10 seconds of the receipt of the logon request. (TBD)	S			
151	3.2.1.1.a	The DAS shall permit each DAS Customer to simultaneously maintain up to 10 resource allocation configuration data sets.	S			
152	3.2.2.1.a	The DAS shall automatically log resource allocation status at 1 minute intervals.		Q1.2		
153	3.2.2.1.b	The DAS shall automatically report resource allocation status at 1 minute intervals.		Q1.2		
154	3.2.2.2.1.a	The DAS shall assess visibility time windows at least 72 hours into the future for the time interval contained within a resource allocation request for a non-dedicated Customer.		Q1.1		C
155	3.2.2.2.1.b	The DAS shall assess visibility time windows at least 24 hours greater than the windows computed in 3.2.2.2.1.a for the time interval contained within a resource allocation request for a dedicated Customer.		Q1.1		C
156	3.2.2.2.2.a	The DAS shall assess resource allocation availability at least 72 hours into the future for the time interval contained within a resource allocation request.		Q1.1		C
157	3.2.2.3.1.a	When a Customer request is being supported by a single TDRS, DAS shall execute TDRS to TDRS transition.		Q1.2		C
158	3.2.2.3.1.b	The DAS shall execute TDRS to TDRS transitions with no more than 15 seconds of service outage.		Q1.2		C

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159	3.2.2.3.1.c	The DAS shall provide status updates to the DAS Customers within 1 minute of a resource allocation change after commencement of service.		Q1.2		C
160	3.2.2.3.1.d	The DAS shall accept resource allocation requests that are to be implemented within 30 seconds after receipt of the request.		Q1.2		C
161	3.2.2.3.1.e	The DAS shall notify the DAS Customer when the resource request is approved and which TDRS(s) will support the request, including any TDRS to TDRS transitions.		Q1.2		C
162	3.2.2.3.1.f	The DAS shall notify the DAS Customer at the service start time of the inability to support an accepted request.		Q1.2		C
163	3.2.2.3.2.a	The DAS shall implement allocation modification requests within 30 seconds of receipt of the request.		Q1.2		C
164	3.2.2.3.2.b	The DAS shall reject resource allocation modifications within 1 minute prior to the time that the service is terminated.		Q1.2		C
165	3.2.2.4.1.a	The DAS shall maintain no more than 96 hours of propagated TDRS ephemerides.		Q1.3		C
166	3.2.2.4.2.a	The DAS shall notify a DAS Customer 2 hours prior to the time that an ephemeris update is due if a state vector update has not been received.		Q1.3		C
167	3.2.2.4.2.b	The DAS shall maintain no more than 96 hours of propagated DAS Customer ephemerides.		Q1.3		C
168	3.2.2.4.2.c	DAS shall ensure that propagated ephemeris is available 2 minutes prior to the start of the DAS Customer requested support.		Q1.3		
169	3.2.2.4.2.d	DAS shall maintain Type 8 vector data indefinitely.		Q1.3		
170	3.2.3.1.a	The DAS shall form a beam such that the C/N_o of the formed beam is within 0.5 dB of the algebraic sum of the individual C/N_o's of the 30 element channels.	I1			
171	3.2.3.1.b	The DAS shall generate weights such that the calculated transfer function (gain and phase) of the sum signal does not change as a result of the update, as long as the calibration vector is constant.	I1			
172	3.2.3.1.c	The DAS shall form simultaneous independent beams independently.	I1			
173	3.2.3.1.d	The DAS shall have the capability of forming a beam centered at any commandable angle within a cone of 27° solid angle centered on the boresight of the TDRS MA antenna array.	I1			
174	3.2.3.1.e	The DAS shall output a beamformed signal with an output signal level of –4 dBm ± 2.0 dBm for a nominal input signal level of -20 dBFS.	I1			
175	3.2.3.1.f	The DAS shall output a beamformed signal that linearly follow the input signal level (within ± 0.5 dB) over the dynamic range of –12.3 dB to + 4 dB about the nominal input signal level of -20 dBFS.	I1			
176	3.2.3.1.g	The DAS shall re-establish all Customer beams within 10 seconds following a loss and subsequent restoration of the EMC output signals.	I1			

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
177	3.2.3.1.h	In adaptive beamforming mode, the DAS shall form a null on an interfering signal within 2 seconds from the time the covariance matrix 'containing' the interferer is provided to the DAS from the EMC.	I1			
178	3.2.3.1.i	In adaptive beamforming mode, the DAS shall automatically null interfering signals by implementing an algorithm that maximizes the Customer signal to interference plus noise ratio in the 6 MHz channel bandwidth.	I1			
179	3.2.3.1.j	In adaptive beamforming mode, for a single interferer having a level of 10 dB above the average element power and located outside the main lobe, the DAS shall null the interferer by at least 10 dB, for 95 percent of all possible combinations of main lobe positions and interferer locations for null locations which are fixed points on the surface of the earth.	I1			
180	3.2.3.1.k	In adaptive beamforming mode, for a single interferer having a level of 10 dB above the average element power and located outside the main lobe, the DAS shall null the interferer by at least 10 dB, for 95 percent of all possible combinations of main lobe positions and interferer locations with the main lobe which is defined as a cone of 3° of solid angle, centered about the commanded pointing direction.	I1			
181	3.2.3.1.l	In adaptive beamforming mode, the DAS shall update beam weights at a rate sufficient to maintain the required null depth while meeting the required beam quality.	I1			
182	3.2.3.1.m	In adaptive beamforming mode, the adaptive nulling requirements shall apply to (Continuous Wave) CW interferers and to interferers of any spectral composition within the 6 MHz element channel bandwidth.	I1			
183	3.2.3.1.n	In adaptive beamforming mode, beamforming requirements 3.2.3.1.a through 3.2.3.1.m shall apply during nulling, except for output C/No.	I1			
184	3.2.4.1.a	Each beamformer output shall be connected to any pre-assigned set of up to 16 demodulator inputs.		Q4.1		
185	3.2.4.2.1.1.a	The DAS shall support a return link signal with a Customer Emitter Frequency (F1) equal to the Customer Emitter Oscillator with a Customer Emitter oscillator frequency uncertainty as defined for Mode A and Mode B.		Q3/Q9	M	
186	3.2.4.2.1.1.b	The DAS shall support a return link signal with PN Code Modulation of SQPN.		Q3/Q9	M	
187	3.2.4.2.1.1.c	The DAS shall support a return link signal with PN Chip Rate (Chips/Sec) of $\frac{31}{240 \times 96} \times F_1$		Q3/Q9	M	
188	3.2.4.2.1.1.d	The DAS shall support a return link signal with PN Code Length (Chips) of $2^{11} - 1$.		Q3/Q9	M	
189	3.2.4.2.1.1.e	The DAS shall support a return link signal with PN Code Epoch Reference in the I Channel equal to the Customer Emitter Oscillator.		Q3/Q9	M	
190	3.2.4.2.1.1.f	The DAS shall support a return link signal with PN Code Epoch Reference in the Q Channel equal to the Epoch delayed ½ PN Code Chip Period Relative to I Channel PN Code Epoch.		Q3/Q9	M	

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
191	3.2.4.2.1.1.g	The DAS shall support a return link signal with PN Code Family of Gold Codes.		Q3/Q9	M	
192	3.2.4.2.1.1.h	The DAS shall support a return link signal with Symbol Format NRZ, and BiΦ-L.		Q3/Q9	M	
193	3.2.4.2.1.1.i	The DAS shall support a return link signal with Data Format of NRZ-L, NRZ-M, NRZ-S.		Q3/Q9	M	
194	3.2.4.2.1.1.j	The DAS shall support a return link signal with Data Modulation of Modulo-2 added asynchronously to PN Code on each Channel.		Q3/Q9	M	
195	3.2.4.2.1.1.k	The DAS shall support a total return link signal with a Data Rate Restriction of 1 – 300 kbps.		Q3/Q9	M	
196	3.2.4.2.1.1.l	The DAS shall support a return link signal with an I CHANNEL Data Rate Restriction of 1 – 150 kbps.		Q3/Q9	M	
197	3.2.4.2.1.1.m	The DAS shall support a return link signal with a Q CHANNEL Data Rate Restriction of 1 – 150 kbps.		Q3/Q9	M	
198	3.2.4.2.1.2.a	The DAS equipment shall not be damaged or cumulatively degraded by the input signal.	A3			
199	3.2.4.2.1.2.b	The DAS shall not extend the effect of each pulse by more than 100 ns.	A3			
200	3.2.4.2.1.2.c	The DAS shall provide for the operation of all signal processing functions in the presence of pulsed RFI.	A3			
201	3.2.4.2.1.3.a	The DAS shall process input signals for Single Data Channel configurations of Balanced QPSK.		Q3/Q9	M	
202	3.2.4.2.1.3.b	The DAS shall process input signals for Single Data Channel configurations of Unbalanced QPSK.		Q3/Q9	M	
203	3.2.4.2.1.3.c	The DAS shall process input signals for Single Data Channel configurations of BPSK.		Q3/Q9	M	
204	3.2.4.2.1.3.d	The DAS shall process input signals for Dual Data Channel configurations of two independent convolutionally coded (rate 1/2) data signals.		Q3/Q9	M	
205	3.2.4.2.1.4.a	The DAS shall decode a signal with a convolutional, non-systematic, transparent code.		Q3/Q9	M	
206	3.2.4.2.1.4.b	The DAS shall decode a signal with a rate of 1/2.		Q3/Q9	M	
207	3.2.4.2.1.4.c	The DAS shall decode a signal with a Constraint Length of K = 7.		Q3/Q9	M	
208	3.2.4.2.1.4.d	The DAS shall decode a signal with Generator Functions of G_1 = 1111001 and G_2 = 1011011.		Q3/Q9	M	
209	3.2.4.2.1.4.e	The DAS shall decode a signal with Symbols generated from G_1 that precede symbols generated from G_2 relative to the data bit period.		Q3/Q9	M	
210	3.2.4.2.1.4.f	The DAS shall decode a signal with Symbols generated from G_2 that are either true or complemented as defined by the service specifications.		Q3/Q9	M	
211	3.2.4.2.1.5.a	The data phase ambiguity shall be resolved for all configurations and modes except when the data format is NRZ-L.		Q3/Q9	M	
212	3.2.4.2.1.6.a	The $L(P_E, R_b)$ for an R_b of 1 kbps and P_E of 10^{-5} shall be 3.0 dB.		Q3/Q9	M	
213	3.2.4.2.1.6.b	The $L(P_E, R_b)$ for an R_b of 10 kbps and P_E of 10^{-5} shall be 3.0 dB.		Q3/Q9	M	

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
214	3.2.4.2.1.6.c	The $L(P_E, R_b)$ for an R_b of 100 kbps and P_E of 10^{-5} shall be 3.0 dB.		Q3/Q9	M	
215	3.2.4.2.1.6.d	The $L(P_E,R_b)$ for an R_b of 1 kbps and P_E of 10^{-6} shall be 3.2 dB.		Q3/Q9	M	
216	3.2.4.2.1.6.e	The $L(P_E,R_b)$ for an R_b of 10 kbps and P_E of 10^{-6} shall be 3.2 dB.		Q3/Q9	M	
217	3.2.4.2.1.6.f	The $L(P_E,R_b)$ for an R_b of 100 kbps and P_E of 10^{-6} shall be 3.2 dB.		Q3/Q9	M	
218	3.2.4.2.1.6.g	The $L(P_E,R_b)$ for an R_b of 1 kbps and P_E of 10^{-7} shall be 3.4 dB.		Q3/Q9	M	
219	3.2.4.2.1.6.h	The $L(P_E,R_b)$ for an R_b of 10 kbps and P_E of 10^{-7} shall be 3.4 dB.		Q3/Q9	M	
220	3.2.4.2.1.6.i	The $L(P_E,R_b)$ for an R_b of 100 kbps and P_E of 10^{-7} shall be 3.4 dB.		Q3/Q9	M	
221	3.2.4.2.1.6.j	For NRZ-M and NRZ-S data formats, an additional implementation loss of 0.1 dB shall be allowed.		Q3/Q9	M	
222	3.2.4.2.1.6.k	The specified performance shall be achieved for each data channel at the decoder output.		Q3/Q9	M	
223	3.2.4.2.1.6.l	For balanced QPSK; Single Data Channel, a maximum 0.1 dB additional implementation loss relative to requirements 3.2.4.2.1.6.a through 3.2.4.2.1.6.k shall be allowed.		Q3/Q9	M	
224	3.2.4.2.1.6.m	The specified performance shall be achieved after signal acquisition has been completed and signal tracking has been achieved.		Q3/Q9	M	
225	3.2.4.2.1.6.n	The specified performance shall be achieved in the presence of Additive White Gaussian Noise.		Q3/Q9	M	
226	3.2.4.2.1.6.o	The specified performance shall be achieved when the signals at the LNA input contain the signal characteristics of Paragraph 3.2.4.2.1.2.	A3			
227	3.2.4.2.1.7.a	Acquisition time shall be measured from the instant at which sufficient C/N_o is present at the DAS input.		Q3		
228	3.2.4.2.1.7.b	Acquisition time shall include the time to acquire the PN code and carrier.		Q3		
229	3.2.4.2.1.7.c	The acquisition time shall not exceed 1 second for a C/N_O value of 36.0 dB-Hz for Mode A or the C/N_o required for the $P_E = 10^{-5}$.		Q3 Q9	M	
230	3.2.4.2.1.7.d	The acquisition time shall not exceed 3 seconds for a C/N_O value of 36.0 dB-Hz for Mode B or the C/N_o required for the $P_E = 10^{-5}$.		Q3/Q9	M	
231	3.2.4.2.1.7.e	The probability of acquisition (P_{acq}) for the times specified in 3.2.4.2.1.7 b, c, and d shall be ≥ 0.9.		Q3/Q9	M	
232	3.2.4.2.1.7.f	In the event that acquisition does not occur within the time specified, the PN code shall be searched until acquisition occurs, or until the end of scheduled service.		Q3/Q9	M	
233	3.2.4.2.1.8.a	For the minimum symbol and data transition densities and the minimum specified C/N_O values required for 10^{-5} P_E performance, the time to achieve symbol/decoder synchronization (in seconds) shall not exceed 1100/(data rate in bps), with 99% probability for Biphase symbol formats		Q3		

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
234	3.2.4.2.1.8.b	For the minimum symbol and data transition densities and the minimum specified C/N_0 values required for 10^{-5} P_E performance, the time to achieve symbol/decoder synchronization (in seconds) shall not exceed 6500/(data rate in bps), with 99% probability for NRZ symbol formats.		Q3		
235	3.2.4.2.1.9.a	Normal Transition Density: The mean time between slips caused by a cycle slip in the symbol clock recovery loop shall be either no less than 90 minutes or no less than 10^{10} clock cycles, whichever is greater, for the C/N_0 required for 10^{-5} P_E performance. This requirement applies for transition densities of at least 40% for NRZ symbols and any transition density for biphase symbols.	A4			
236	3.2.4.2.1.9.b	Low Transition Density. The mean time between slips caused by a cycle slip in the symbol clock recovery loop shall be either no less than 90 minutes or no less than 10^{10} clock cycles, whichever is greater, for 1.0 dB more C/N_0 than required for 10^{-5} P_E performance. This requirement applies for NRZ symbol transition densities between 25% and 40%.	A4			
237	3.2.4.2.1.10.a	The mean time-to-cycle slip in tracking the carrier shall be greater than or equal to 90 minutes for a 3 dB less C/N_0 than required for 10^{-5} P_E performance.	A4			
238	3.2.4.2.1.11.a	During signal acquisition and signal tracking, DAS services shall be protected against false carrier acquisition and false acquisition to PN code sidebands, including multipath.	A5			
239	3.2.4.2.1.12.a	Normal Transition Density. Symbol synchronization shall be maintained for 3 dB less C/N_0 than required for 10^{-5} P_E performance. This requirement applies for transition densities of at least 40% for NRZ symbols and any transition density for biphase symbols.		Q3		
240	3.2.4.2.1.12.b	Low Transition Density. Symbol synchronization shall be maintained for 2 dB less C/N_0 than required for 10^{-5} P_E performance. This requirement applies for NRZ symbol transition densities between 25% and 40%.		Q3		
241	3.2.4.2.1.13.a	The DAS shall accommodate an input C/N_0 variation of 12 dB, at a rate not to exceed 10 dB/sec, without requiring a reconfiguration.	A3	Q3	M	
242	3.2.4.2.1.14.a	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Data asymmetry $\leq \pm$ 3%	A3			
243	3.2.4.2.1.14.b	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Data transition time $\leq$ 5% of bit time but no less than 35 nsec	A3			
244	3.2.4.2.1.14.c	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: I/Q data skew (relative to requirements for I/Q data synchronization) $\leq$ 3%	A3			
245	3.2.4.2.1.14.d	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: I/Q PN chip skew (relative to 0.50 chip) $\leq$ 0.01 chip	A3			

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
246	3.2.4.2.1.14.e	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: PN code power suppression < 0.3 dB	A3			
247	3.2.4.2.1.14.f	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: PN chip rate (relative to absolute coherence with carrier rate) ≤ 0.01 Hz at PN rate	A3			
248	3.2.4.2.1.14.g	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: BPSK phase imbalance ≤ ± 3°	A3			
249	3.2.4.2.1.14.h	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Gain imbalance ≤ ± 0.25 dB	A3			
250	3.2.4.2.1.14.i	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: QPSK phase imbalance 90 ± 3°	A3			
251	3.2.4.2.1.14.j	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: AM/PM ≤ 12°/dB	A3			
252	3.2.4.2.1.14.k	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Spurious PM (100 Hz to 3 MHz) ≤ 3° rms	A3			
253	3.2.4.2.1.14.l	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Incidental AM (3σ) (at frequencies > 10 Hz for data rates < 1 kbps; at frequencies > 100 Hz for data rates ≥ 1 kbps) ≤ 6%	A3			
254	3.2.4.2.1.16.a	In the event of loss of lock (PN code and/or carrier) reacquisition shall be automatically initiated.		Q3		
255	3.2.4.2.1.16.b	The most recent commanded frequency offset shall be used to aid reacquisition.	A5			
256	3.2.4.2.1.16.c	Reacquisition time shall be less than or equal to the initial acquisition times specified in Section 3.2.4.2.1.7.c and 3.2.4.2.1.7.d.	A5			
257	3.2.4.2.1.16.d	Reacquisition shall continue until lock is achieved or DAS is reconfigured.		Q3		
258	3.2.5.1.1.a	The DAS shall support Internet Protocol (IP) for routing data to Customers.		Q6		
259	3.2.5.1.1.b	The DAS shall support frame sync based CCSDS protocol for routing data to Customers. (TBD)	I9			
260	3.2.5.1.1.c	The DAS shall support routing serial, bit-stream contiguous data to Customers	D			
261	3.2.5.1.1.d	The DAS shall support the IP Data Unit (IPDU) ground transport header.	I9			
262	3.2.5.1.1.e	The DAS shall support the ACE SFDU ground transport header.	I9			
263	3.2.5.1.1.f	The DAS shall support the AXAF-1 SFDU ground transport header.	I9			
264	3.2.5.1.1.g	The DAS shall support the LEO-T ground transport header.	I9			
265	3.2.5.1.3.a	The DAS shall respond to the retrieve archived return data request within 30 seconds.		Q6		C

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
266	3.2.5.1.3.b	The DAS shall retrieve and transmit archived data within 1 minute of the specified time.		Q6		C
267	3.2.5.1.3.c	The DAS shall reject archived data retrieval requests received within 1 minute of the request start time.		Q6		C
268	3.2.5.1.4.a	The DAS shall transmit return data, within the WSC DAS allocated aggregate bandwidth, to a maximum of 50 DAS Customers simultaneously.		Q6		C
269	3.2.5.2.1.a	The DAS shall provide no less than 100 Mbytes of storage space to archive return data.	A6			
270	3.2.5.2.1.b	The DAS shall simultaneously manage archiving up to 50 return data streams.	I9			
271	3.2.5.2.1.c	Archived data shall be overwritten on a first in, first out basis.		Q6		
272	3.2.5.2.1.d	Notification shall be provided to the DAS LCM when the archived storage device is 90 percent full.		Q6		
273	3.2.5.2.1.e	The defined maximum allowed storage duration shall be changeable at the DAS LCM.		Q6		
274	3.2.5.2.1.f	The defined maximum storage capacity limit shall be changeable at the DAS LCM.		Q6		
275	3.2.6.a	The DAS shall automatically provide status reports of all components that constitute DAS to the Local Control Monitor with a 5 second refresh rate.		Q2		
276	3.2.7.1.a	DAS shall log status of all components that constitute DAS every 1 second.		Q4.2		
277	3.2.7.1.b	DAS shall time stamp all delogged status outputs.		Q4.2		
278	3.2.7.1.c	DAS shall allow delogging of status based on data value changes only.		Q4.2		
279	3.2.7.1.d	DAS shall log an event alert when an operational abnormality occurs within 1 second of the occurrence of the abnormality.		Q4.2		
280	3.2.7.1.e	The DAS shall provide status of all components that constitute DAS on demand.		Q4.2		
281	3.2.7.1.f	The DAS shall provide DAS Customer performance status data to the LCM on demand.		Q4.2		
282	3.2.7.1.g	The DAS shall allow delogging of individual status measurands.		Q4.2		
283	3.2.7.1.h	The DAS shall maintain system status log data for at least 45 days (TBR).	A6			
284	3.2.7.2.a	The DAS shall provide performance status data to the DAS Customer at 1 minute intervals at the commencement of service.		Q4.2		
285	3.2.7.3.a	The service accounting statistics report shall be available at the LCM within 1 minute of the submitted request.		Q4.2		
286	3.3.1.a	The DAS shall interface with the SWSI in accordance with the specifications in the ICD between DAS and SWSI.		Q13		C
287	3.3.3.a	The DAS shall exchange information with DAS Customers in accordance with the specifications in the ICD between the DAS and DAS Customers.		Q13		C
288	3.3.3.b	The DAS shall exchange information with DAS Customers in accordance with the specifications in the ICD between the DAS and SWSI		Q13		C

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
289	3.3.4.a	The DAS shall interface with the WSC Systems in accordance with the specifications in the ICD between the DAS and the White Sands Complex.		Q13 Q10	M	C
290	4.1.1.a	The Parts Count Reliability prediction method of MIL-HDBK-217 shall be used in the initial stages of system design.	A7			
291	4.1.1.b	The reliability prediction method shall shift to the Parts Stress Analysis Prediction method, or other reliability modelling technique approved by NASA, at the time when a firm, detailed parts list is available.	A7			
292	4.2.1.a	A Maintainability Status Report shall be provided in accordance with Task 104 of MIL HDBK-470a, Designing and Developing maintainable Products and Systems, and include any changes in predicted maintainability parameters.	A7			
293	4.2.1.b	The DAS shall have an MTTR not exceeding 30 minutes during the expected 10 year lifetime of the DAS.		Q4.5		
294	4.2.1.c	The maximum time to repair shall not exceed 1 hour for the 90^{th} percentile of failures.	A7			
295	4.2.1.d	These MTTRs shall be applicable to GRGT for components with locally available sparing.		Q4.5		
296	4.2.2.a	Failures shall be isolated to one chassis or Line Replaceable Unit (LRU), whichever is smaller. Manual intervention can be used to isolate failures to below the chassis or LRU level.	A7			
297	4.2.2.b	Modes shall be provided to enable the repeating and/or bypassing of tests to check the operation of the subsystems while using internal or external test equipment.		Q4.5		
298	4.3.a	The inherent availability for any period of 10,000 hours shall be 0.995.	A7			
299	4.4.a	For each DAS there shall be a communications path from the output of the EMC to the Data routing and Archiving external interface.	A7			
300	4.4.1.a	Available service time is measured over a contiguous 10,000 hour interval except that any loss of availability due to loss of facility services such as power or air conditioning, or loss of system capability resulting from unusual weather conditions, such as icing or severe rain storms, shall not be counted.	A7			
301	4.4.1.b	The time service is not available shall include all times service is not available due to corrective maintenance downtime, administrative downtime, logistics supply downtime, and preventive maintenance downtime.	A7			
302	5.1.1.a	All chassis, subsystems and systems of new design or significantly modified design shall be designed and constructed to comply with the requirements of STDN-SPEC-4.	I3			
303	5.1.1.b	Section 3.16 of STDN-SPEC-4, Maintainability shall not apply.	I3			
304	5.1.1.c	Maintainability provisions of this specification shall be used.	I3			
305	5.1.1.d	Programmable semiconductor devices in any chassis shall be handled in accordance with the provisions of STDN-SPEC-3.	I3			

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
306	5.1.1.e*	Connectors, cable, wires and other materials listed in STDN-SPEC-8, GSFC Specification for Electronic Equipment Installation Materials shall be used in the design and construction of WSC equipment. Use of materials other than those in STDN-SPEC-8 will require a waiver from the DAS Product Manager.	I3			
307	5.2.a	DAS equipment shall be mounted in electronic equipment racks which conform to STDN No. 270.5, GSFC Specification Electronic Equipment Racks.	I3			
308	5.2.b	Tapped panel mounting holes shall be included (Section 6.8 of STDN No. 270.5).	I3			
309	5.2.c	If required to meet the Electromagnetic Interference (EMI) requirements for the WSC, the Electromagnetic Compatibility option (Section 6.10 of STDN No. 270.5) shall be used where necessary.	I3			
310	5.2.d	If racks in excess of the standard 19-inch panel width are required for mounting some equipment, Section 6.14 of STDN No. 270.5 shall apply.	I3			
311	5.2.e	Equipment consoles shall comply with the requirements of Section 6.18 of STDN No. 270.5. If size constraints of standard equipment require console construction that differs from the requirements of Section 6.17, or if the contractor desires to use consoles, which are not in compliance with Section 6.17 of STDN No. 270.5, then a waiver will be required from the DAS Product Manager.	I3			
312	5.3.a	Each rack shall be provided with an input/output (bulkhead) panel in accordance with Section 3.7a of STDN-SPEC-4.	I3			
313	5.3.b	All cabling between DAS delivered systems and subsystems and WSC Systems shall be provided.	I3			
314	5.3.c	All mating connectors shall be supplied.	I3			
315	5.3.d	All cabling required to configure the systems and subsystems for checkout and in-plant testing shall be provided. This includes cabling required at the WSGT/STGT and GRGT sites for all special test equipment.	I3			
316	5.4.c	The operational convenience of the DAS shall be maintained while satisfying the above requirements by the exclusion of rack front doors, hidden controls and displays, and by the location of equipment in the system racks.	I4			
317	5.4.d	EMI racks and filtering shall be used as required.	I4			
318	5.4.e	All controls and displays shall be fully accessible during setup and normal operation of the DAS.	I4			
319	5.4.f	DAS equipment shall not be effected by conducted or radiated emissions resulting from the operation of existing equipment.		Q12		
320	5.4.g	All DAS equipment shall comply with STGT-HE-04-04, USS RF Equipment Group HWCI Specification Section 3.3.4.2 for Electromagnetic Compatibility Control.		Q11		
321	5.4.h	DAS equipment conducted and radiated emissions shall not effect existing equipment.		Q12		
322	6.1.1.a	WSC-provided site documents shall be used in planning the configuration and layout of equipment.	I5			
323	6.1.1.b	A set of plans shall be developed that provides an efficient layout of all equipment.	I5			

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
324	6.1.1.c	The site plan shall provide drawings that specify the type, size, length, number, and layout of conductors for all signal and power cabling necessary for equipment operation.	I5			
325	6.1.1.d	The site plan shall contain, for each major component: the BTUs emitted; the electrical power requirements by KVA, Hertz, Volts and power conditioning; and the floor space area occupied by each rack or multiple rack system.	I5			
326	6.1.1.e	The equipment installation shall be documented in accordance with the requirements of the WSC Handbook Series, Volume VII, Engineering, 530-WSC-LOP-VII and, the Specification Station Handbook Documentation, STDN-SPEC-10.	I5			
327	6.2.a	All power and signal cables necessary for equipment operations shall be provided.	I5			
328	6.2.b	Cable installation shall be in accordance with the requirements of STDN-SPEC-6, GSFC Specification Installation Requirements for STDN Equipment.	I5			
329	6.2.c	All cable fabrication shall be in accordance with the requirements of STDN-SPEC-4, Section 3.7.	I5			
330	6.3.a	Equipment installations shall be in accordance with STDN-SPEC-6, Installation Requirements for STDN Equipment	I5			
331	6.3.b	Floor panels shall be in accordance with the requirements of STDN-SPEC-6	I5			
332	8.1.a	Training policies, plans and procedures shall provide for orderly transition into sustained operations and maintenance.	A8			
333	8.2.a	Training shall prepare operations and maintenance personnel, including both Government and contractor employees, to operate, maintain, and support the DAS.	A8			
334	8.2.b	Operations personnel shall be trained to perform operations functions in accordance with WSC Local Operations Procedures (LOPs).	A8			
335	8.2.c	Maintenance technicians shall be trained to maintain DAS subsystems in order to meet the maintainability requirements. This includes training in the maintenance of software and firmware using the facilities provided in the SMTF.	A8			
336	8.2.d	The maximum amount of training shall be performed at the WSC. Training shall be conducted at other sites, such as vendor facilities, when it is cost effective to the Government.	A8			
337	8.2.e	The course material shall be modularized, individualized, and use multimedia learning resources including manuals, study guides, workbooks and audiovisual materials as appropriate.	A8			
338	8.2.f	The initial training program shall concentrate on maintenance and operations.	A8			
339	8.2.g	Students for further training programs shall include NASA instructors, cognizant NASA technical personnel, NASA system engineers and WSC Operations and Maintenance (O&M) contractor personnel.	A8			
340	8.3.a	The training program shall include a definition of the qualifications required by operations and maintenance personnel to meet position description skill requirements.	I6			

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
341	8.3.b	A training plan to define the phasing, methods and techniques for achieving the requisite skill levels, using curricula and course materials for skill/qualification areas within each position description shall be included.	I6			
342	8.3.c	Training devices and equipment shall be included.	I6			
343	8.3.d	Administrative support to implement the training program shall be included.	I6			
344	8.4.1.a	Operator training shall cover a DAS network overview.	I6			
345	8.4.1.b	Operator training shall cover the DAS concept of operations including key design features.	I6			
346	8.4.1.c	Operator training shall cover detailed DAS operational procedures.	I6			
347	8.4.2.a	Maintenance training for both hardware and software shall cover DAS maintenance concept.	I6			
348	8.4.2.b	Maintenance training for both hardware and software shall cover diagnostics and troubleshooting.	I6			
349	8.4.2.c	Maintenance training for both hardware and software shall cover detailed repair procedures and techniques including the use of available tools and repair equipment.	I6			
350	8.4.2.d	Maintenance training for both hardware and software shall cover DAS software maintenance concepts.	I6			
351	8.4.2.e	Software-unique maintenance training shall include debugging techniques and high order language (HOL) use. * *Currently no funding*	D			
352	8.4.2.f	Training shall cover maintenance of both operational and support software.	I6			
353	8.5.a	DAS training devices and equipment for maintenance training shall be specified in the Training Plan.	I6			
354	8.6.a	Administrative support for training shall provide for the testing and certification of students.	I6			
355	9.2.a	Procedures shall be developed using 500-tip-2111, Content Specification for Operation and Maintenance Manuals, as a guideline.	A9			
356	9.2.b	Any state-of-the-art techniques that are developed for the DAS shall be included in the procedures.	A9			
357	9.2.1.1.a	LRUs shall include rack-mounted equipment drawers and panels and other assemblies that can be removed by unplugging power and signal connectors without physically disturbing other LRUs. Other line replaceable items include printed circuit cards and other plug-in components within an LRU.		Q4.5		
358	9.2.1.2.a	First level maintenance shall include scheduled preventive maintenance.	A9			
359	9.2.1.2.b	First level maintenance shall include fault isolating to the level of an LRU.	A9			
360	9.2.1.2.c	Fault isolation to the level of a line replaceable item within an LRU (if any) shall be performed if the time required is consistent with the operational maintainability requirement	D			
361	9.2.1.2.d	First level maintenance shall include replacement of a failed LRU or line replaceable element within an LRU.	A9			
362	9.2.1.2.e	First level maintenance shall include testing to ensure that the system/subsystem has been restored to operational condition.	A9			

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
363	9.2.1.2.f	First level maintenance shall include alignment and tuning.	A9			
364	9.2.1.3.a	Second level maintenance actions shall include localization of a failure to the piece-part or equipment component level, as appropriate	D			
365	9.2.1.3.b	Second level maintenance actions shall include disassembly and removal of the failed piece-part or equipment component.	D			
366	9.2.1.3.c	Second level maintenance actions shall include replacement of failed elements and reassembly.	D			
367	9.2.1.3.d	Second level maintenance actions shall include bench testing to ensure performance to the specified level.	D			
368	9.2.2	Software maintenance, including debugging, modification, and enhancement of system software packages, shall be performed in the SMTF	D			
369	10.1.a	Spares provisioning for the WSC shall be determined and provided by the development contractor through Provisional Acceptance Testing	I7			
370	10.1.b	A series of provisioning conferences shall be supported to develop the spares provisioning program in accordance with STDN 507, Network Logistics Manual.	I7			
371	10.1.c	All support spares remaining after Acceptance testing shall be delivered to the WSC site.	I7			
372	10.1.d	The information required to develop, implement and maintain operation of this spares provisioning program, consistent with the DAS requirements contained in this Specification and the spares provisioning requirements identified in the following sections.	I7			
373	10.3.a	The initial spares provisioning shall be determined.	I7			
374	10.3.b	The proposed spare parts and quantities shall be based upon satisfying the availability and maintainability requirements of this Specification.	I7			
375	10.4.1.a	It shall be ensured that either spare parts are available for a period of 10 years after Final Acceptance Testing or that NASA be provided advance notice of intent to discontinue manufacture of parts/components by all levels of subcontractors.	I7			
376	10.4.a	Technical data shall be provided to allow for procurement of spare parts directly from the actual manufacturer of the equipment.	I7			
377	11.1.a	The DAS shall conform to the requirements and procedures of NASA NPG 2810.1		Q4.6		
378	11.2.a	The DAS IT Security Boundary for Customer control and status shall be at the interface to the SWSI.	I8			
379	11.2.b	The DAS IT Security Boundary for NISN Closed IOnet telemetry delivery shall be at the WSC Closed IOnet interface	I8			
380	11.2.c	The DAS IT Security Boundary for Internet telemetry delivery shall be at the interface with the NISN Secure Gateway defined in 290-003	I8			
381	11.2.d	The DAS Physical Security Boundary shall be within the Category II Limited Areas defined in 530-WSC-0009	I8			
382	11.3.a	The DAS connection to the SWSI interface shall be via the Closed IOnet only	I8			
383	11.3.b	The DAS connection to the NISN Secure Gateway shall be via the Closed IOnet only	I8			

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
384	11.4.a	The DAS shall ensure that only specifically authorized Customers have access to their specific Customer data	S			
385	11.4.b	The DAS shall control access to DAS data by O&M personnel as defined in 530-WSC-0024		Q4.6		C

Exhibit A-1: SRD Mapping to Test Case

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
2	3.1.1.1.a	The DAS shall accept DAS Customer set(s) of resource configuration parameters.		Q1.1		C
3	3.1.1.1.b	The DAS shall accept updates to existing sets of DAS Customer configuration parameters.		Q1.1		C
4	3.1.1.1.c	The DAS shall report to DAS Customers the contents of the configuration parameters currently retained.		Q1.1		C
8	3.1.2.2.a	The DAS shall accept DAS Customer requests for resource allocation planning information.		Q1.1		C
9	3.1.2.2.b	The DAS shall provide resource allocation availability reports to a DAS Customer for planning such that specific resource allocation information of other Customers is not compromised.		Q1.1		C
10	3.1.2.2.c	The DAS shall provide resource availability data to the DAS LCM.		Q1.1		
11	3.1.2.2.1.a	The DAS shall provide DAS Customers with the option of specifying which TDRS(s) is (are) to be used in resource allocation service request.		Q1.1		C
12	3.1.2.2.1.b	The DAS shall verify the validity of the DAS Customer's requests for TDRS assignments based upon visibility.		Q1.1		C
13	3.1.2.2.1.c	The DAS shall use ephemeris data to automatically determine the visibility status of a TDRS.		Q1.1		C
14	3.1.2.2.1.d	The DAS shall automatically construct the time windows within a DAS Customer specified time interval in order to identify when a TDRS is visible to a DAS Customer's emitter.		Q1.1		
15	3.1.2.2.2.a	The DAS shall automatically assess resource allocation data to determine the allocation status of all DAS resource assets.		Q1.1		
16	3.1.2.2.2.b	The DAS shall automatically identify which DAS resource assets are available for allocation at any given time.		Q1.1		
17	3.1.2.2.2.c	The DAS shall automatically construct the time windows within a DAS Customer specified time interval that identifies when DAS resource assets are available for allocation.		Q1.1		
18	3.1.2.2.2.d	All DAS resources shall be shared to fulfil allocation requests for dedicated and non-dedicated Customers		Q1.1		
19	3.1.2.2.2.e	The DAS shall automatically assess the availability of resources for non-dedicated Customers use based upon the resources that are available after fulfilling dedicated Customer requests.		Q1.1		
20	3.1.2.2.2.f	The DAS shall combine emitter visibility and resource assets availability information to determine allocations that meet a DAS Customer request.		Q1.1		
21	3.1.2.2.2.g	The DAS shall provide a report to the DAS Customer, which summarizes the times when planning request constraints can be realized.		Q1.1		C
154	3.2.2.2.1.a	The DAS shall assess visibility time windows at least 72 hours into the future for the time interval contained within a resource allocation request for a non-dedicated Customer.		Q1.1		C
155	3.2.2.2.1.b	The DAS shall assess visibility time windows at least 24 hours greater than the windows computed in 3.2.2.2.1.a for the time interval contained within a resource allocation request for a dedicated Customer.		Q1.1		C
156	3.2.2.2.2.a	The DAS shall assess resource allocation availability at least 72 hours into the future for the time interval contained within a resource allocation request.		Q1.1		C

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
5	3.1.2.1.a	The DAS shall collect and log status on each DAS Customer's allocated resources.		Q1.2		C
6	3.1.2.1.b*	The DAS shall provide periodic, unsolicited summarized resource allocation status reports to each DAS Customer.		Q1.2		C
7	3.1.2.1.c	The DAS shall provide periodic, unsolicited summarized resource allocation status reports to the DAS LCM.		Q1.2		
22	3.1.2.3.1.a	The DAS shall accept DAS Customer requests for resource allocations.		Q1.2		C
23	3.1.2.3.1.b	The DAS shall automatically allocate resources for the DAS Customers who request resource.		Q1.2		C
24	3.1.2.3.1.c	The DAS shall ensure that the allocation of resources for Non-Dedicated Customers is never in conflict with the allocation of resources for Dedicated Customers.		Q1.2		C
25	3.1.2.3.1.d	The DAS shall automatically assign resources from the shared pool of DAS resources to non-dedicated Customers when the resources are not required to fulfil dedicated Customers requests.		Q1.2		C
26	3.1.2.3.1.e	The DAS shall automatically assign TDRS satellite(s) to a resource allocation request if no specific TDRS satellite(s) is(are) designated in the DAS Customer's request.		Q1.2		C
27	3.1.2.3.1.f	The DAS shall log the resource allocation time intervals for each DAS asset.		Q1.2		
28	3.1.2.3.1.g	The DAS shall automatically make TDRS to TDRS transition assessments that will occur during a service as needed to support the assigning of DAS assets to satisfy each DAS Customer resource allocation request.		Q1.2		C
29	3.1.2.3.1.h	The DAS shall provide status to the DAS Customer that reports the action taken as a result of the processing of resource allocation request.		Q1.2		C
30	3.1.2.3.1.i	The DAS shall log resource assignment statistics as service accounting data.		Q1.2		
31	3.1.2.3.1.j	The DAS shall support assignment of demodulated signals from multiple emitters in the same beam.		Q1.2		C
32	3.1.2.3.1.k	The DAS shall provide resource assignment data to the DAS LCM.		Q1.2		
33	3.1.2.3.1.l	The DAS shall notify the DAS Customer of any change to a resource allocation request that prevents the DAS Customer request from being supported.		Q1.2		C
34	3.1.2.3.1.m	The DAS shall be capable of removing from the DAS shared resources any resources that are unavailable due to failure or maintenance action.		Q1.2		C
35	3.1.2.3.1.n	The DAS shall reject resource allocation requests that cannot be implemented due to time or resource constraints.		Q1.2		C
37	3.1.2.3.2.b	The DAS shall allow a DAS Customer to modify an accepted request that is pending implementation.		Q1.2		C
38	3.1.2.3.2.c	The DAS shall allow a DAS Customer to modify an on-going request.		Q1.2		C
39	3.1.2.3.2.d	The DAS shall provide status to the DAS Customer that reports the action taken as the result of the processing of modification requests.		Q1.2		C
40	3.1.2.3.2.e	The DAS shall return DAS allocated assets to the pool of unallocated resources if no longer needed to support Customer resource allocation assignments.		Q1.2		C

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
41	3.1.2.3.2.f	The DAS shall log the modification of resource assignments.		Q1.2		
152	3.2.2.1.a	The DAS shall automatically log resource allocation status at 1 minute intervals.		Q1.2		
153	3.2.2.1.b	The DAS shall automatically report resource allocation status at 1 minute intervals.		Q1.2		
157	3.2.2.3.1.a	When a Customer request is being supported by a single TDRS, DAS shall execute TDRS to TDRS transition.		Q1.2		C
158	3.2.2.3.1.b	The DAS shall execute TDRS to TDRS transitions with no more than 15 seconds of service outage.		Q1.2		C
159	3.2.2.3.1.c	The DAS shall provide status updates to the DAS Customers within 1 minute of a resource allocation change after commencement of service.		Q1.2		C
160	3.2.2.3.1.d	The DAS shall accept resource allocation requests that are to be implemented within 30 seconds after receipt of the request.		Q1.2		C
161	3.2.2.3.1.e	The DAS shall notify the DAS Customer when the resource request is approved and which TDRS(s) will support the request, including any TDRS to TDRS transitions.		Q1.2		C
162	3.2.2.3.1.f	The DAS shall notify the DAS Customer at the service start time of the inability to support an accepted request.		Q1.2		C
163	3.2.2.3.2.a	The DAS shall implement allocation modification requests within 30 seconds of receipt of the request.		Q1.2		C
164	3.2.2.3.2.b	The DAS shall reject resource allocation modifications within 1 minute prior to the time that the service is terminated.		Q1.2		C
42	3.1.2.4.1.a	The DAS shall automatically accept TDRS vector data in accordance with the ICD between the DAS and the WSC, 451-ICD-DAS/WSC.		Q1.3		C
43	3.1.2.4.1.b	The DAS shall support manual entry of TDRS vector data via the DAS LCM.		Q1.3		
44	3.1.2.4.1.c	The DAS shall notify Local Control and Monitor when a TDRS state vector update is overdue.		Q1.3		
45	3.1.2.4.1.d	The DAS shall propagate the last state vector in the existing TDRS ephemeris if a new state vector update is not available.		Q1.3		
46	3.1.2.4.1.e	The DAS shall automatically log TDRS ephemeris.		Q1.3		
47	3.1.2.4.2.a	The DAS shall automatically accept DAS Customer emitter vector data.		Q1.3		C
48	3.1.2.4.2.b	The DAS shall support manual entry of DAS Customer emitter vector data via the DAS LCM.		Q1.3		
49	3.1.2.4.2.c	The DAS shall automatically access an ephemeris for each DAS Customer emitter during resource allocation assessments.		Q1.3		
50	3.1.2.4.2.d	The DAS shall automatically log an orbiting DAS Customer emitter ephemeris.		Q1.3		
51	3.1.2.4.2.e	The DAS shall notify a DAS Customer and the DAS LCM when a DAS Customer state vector update is overdue.		Q1.3		C
52	3.1.2.4.2.f	The DAS shall propagate the last state vector in the existing DAS Customer ephemeris if a new state vector update is not available.		Q1.3		

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
53	3.1.2.4.2.g	The DAS shall retain Type 8 vector data.		Q1.3		
54	3.1.2.4.2.h	The DAS shall generate an alert to the DAS LCM when TDRS or DAS Customer state vector updates are overdue.		Q1.3		
55	3.1.2.4.3.a	The DAS shall automatically identify outdated ephemerides.		Q1.3		
56	3.1.2.4.3.b	The DAS shall automatically purge all outdated ephemerides.		Q1.3		
165	3.2.2.4.1.a	The DAS shall maintain no more than 96 hours of propagated TDRS ephemerides.		Q1.3		C
166	3.2.2.4.2.a	The DAS shall notify a DAS Customer 2 hours prior to the time that an ephemeris update is due if a state vector update has not been received.		Q1.3		C
167	3.2.2.4.2.b	The DAS shall maintain no more than 96 hours of propagated DAS Customer ephemerides.		Q1.3		C
168	3.2.2.4.2.c	DAS shall ensure that propagated ephemeris is available 2 minutes prior to the start of the DAS Customer requested support.		Q1.3		
169	3.2.2.4.2.d	DAS shall maintain Type 8 vector data indefinitely.		Q1.3		
320	5.4.g	All DAS equipment shall comply with STGT-HE-04-04, USS RF Equipment Group HWCI Specification Section 3.3.4.2 for Electromagnetic Compatibility Control.		Q11		
319	5.4.f	DAS equipment shall not be effected by conducted or radiated emissions resulting from the operation of existing equipment.		Q12		
321	5.4.h	DAS equipment conducted and radiated emissions shall not effect existing equipment.		Q12		
286	3.3.1.a	The DAS shall interface with the SWSI in accordance with the specifications in the ICD between DAS and SWSI.		Q13		C
287	3.3.3.a	The DAS shall exchange information with DAS Customers in accordance with the specifications in the ICD between the DAS and DAS Customers.		Q13		C
288	3.3.3.b	The DAS shall exchange information with DAS Customers in accordance with the specifications in the ICD between the DAS and SWSI		Q13		C
289	3.3.4.a	The DAS shall interface with the WSC Systems in accordance with the specifications in the ICD between the DAS and the White Sands Complex.		Q13 Q10	M	C
99	3.1.6.a	The DAS LCM shall provide an operational interface to monitor, coordinate, control and report the performance of all DAS system components.		Q2		
100	3.1.6.b	The DAS shall accept system control commands from the DAS LCM.		Q2		
101	3.1.6.c	The DAS shall provide system control reports to the DAS LCM.		Q2		
102	3.1.6.d	The DAS shall accept system status requests from the DAS LCM.		Q2		
103	3.1.6.e	The DAS shall report system status to the DAS LCM.		Q2		
106	3.1.6.h	The DAS shall accept requests for service accounting reports from the DAS LCM.		Q2		
107	3.1.6.i	The DAS shall support enabling and disabling adaptive nulling from the LCM.		Q2		

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
275	3.2.6.a	The DAS shall automatically provide status reports of all components that constitute DAS to the Local Control Monitor with a 5 second refresh rate.		Q2		
227	3.2.4.2.1.7.a	Acquisition time shall be measured from the instant at which sufficient C/N_o is present at the DAS input.		Q3		
228	3.2.4.2.1.7.b	Acquisition time shall include the time to acquire the PN code and carrier.		Q3		
233	3.2.4.2.1.8.a	For the minimum symbol and data transition densities and the minimum specified C/N_0 values required for 10^{-5} P_E performance, the time to achieve symbol/decoder synchronization (in seconds) shall not exceed 1100/(data rate in bps), with 99% probability for Biphase symbol formats		Q3		
234	3.2.4.2.1.8.b	For the minimum symbol and data transition densities and the minimum specified C/N_0 values required for 10^{-5} P_E performance, the time to achieve symbol/decoder synchronization (in seconds) shall not exceed 6500/(data rate in bps), with 99% probability for NRZ symbol formats.		Q3		
239	3.2.4.2.1.12.a	Normal Transition Density. Symbol synchronization shall be maintained for 3 dB less C/N_0 than required for 10^{-5} P_E performance. This requirement applies for transition densities of at least 40% for NRZ symbols and any transition density for biphase symbols.		Q3		
240	3.2.4.2.1.12.b	Low Transition Density. Symbol synchronization shall be maintained for 2 dB less C/N_0 than required for 10^{-5} P_E performance. This requirement applies for NRZ symbol transition densities between 25% and 40%.		Q3		
241	3.2.4.2.1.13.a	The DAS shall accommodate an input C/N_0 variation of 12 dB, at a rate not to exceed 10 dB/sec, without requiring a reconfiguration.	A3	Q3	M	
254	3.2.4.2.1.16.a	In the event of loss of lock (PN code and/or carrier) reacquisition shall be automatically initiated.		Q3		
257	3.2.4.2.1.16.d	Reacquisition shall continue until lock is achieved or DAS is reconfigured.		Q3		
68	3.1.4.2.1.a	The DAS shall provide Doppler correction for Customer emitters.		Q3/Q9	M	
69	3.1.4.2.1.b	The DAS shall despread the received PN spread signal.		Q3/Q9	M	
70	3.1.4.2.1.c	The DAS shall demodulate the carrier.		Q3/Q9	M	
71	3.1.4.2.1.d	The DAS shall provide recovered carrier for Doppler measurement.		Q3/Q9	M	
72	3.1.4.2.1.e	The DAS shall recover symbol clock and detect the symbol.		Q3/Q9	M	
73	3.1.4.2.1.f	The DAS shall perform convolutional decoding on each baseband symbol stream.		Q3/Q9	M	
74	3.1.4.2.1.h	The DAS shall resolve data phase ambiguity		Q3/Q9	M	
185	3.2.4.2.1.1.a	The DAS shall support a return link signal with a Customer Emitter Frequency (F1) equal to the Customer Emitter Oscillator with a Customer Emitter oscillator frequency uncertainty as defined for Mode A and Mode B.		Q3/Q9	M	
186	3.2.4.2.1.1.b	The DAS shall support a return link signal with PN Code Modulation of SQPN.		Q3/Q9	M	

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
187	3.2.4.2.1.1.c	The DAS shall support a return link signal with PN Chip Rate (Chips/Sec) of $\frac{31}{240 \times 96} \times F_1$		Q3/Q9	M	
188	3.2.4.2.1.1.d	The DAS shall support a return link signal with PN Code Length (Chips) of $2^{11} - 1$.		Q3/Q9	M	
189	3.2.4.2.1.1.e	The DAS shall support a return link signal with PN Code Epoch Reference in the I Channel equal to the Customer Emitter Oscillator.		Q3/Q9	M	
190	3.2.4.2.1.1.f	The DAS shall support a return link signal with PN Code Epoch Reference in the Q Channel equal to the Epoch delayed ½ PN Code Chip Period Relative to I Channel PN Code Epoch.		Q3/Q9	M	
191	3.2.4.2.1.1.g	The DAS shall support a return link signal with PN Code Family of Gold Codes.		Q3/Q9	M	
192	3.2.4.2.1.1.h	The DAS shall support a return link signal with Symbol Format NRZ, and BiΦ-L.		Q3/Q9	M	
193	3.2.4.2.1.1.i	The DAS shall support a return link signal with Data Format of NRZ-L, NRZ-M, NRZ-S.		Q3/Q9	M	
194	3.2.4.2.1.1.j	The DAS shall support a return link signal with Data Modulation of Modulo-2 added asynchronously to PN Code on each Channel.		Q3/Q9	M	
195	3.2.4.2.1.1.k	The DAS shall support a total return link signal with a Data Rate Restriction of 1 – 300 kbps.		Q3/Q9	M	
196	3.2.4.2.1.1.l	The DAS shall support a return link signal with an I CHANNEL Data Rate Restriction of 1 – 150 kbps.		Q3/Q9	M	
197	3.2.4.2.1.1.m	The DAS shall support a return link signal with a Q CHANNEL Data Rate Restriction of 1 – 150 kbps.		Q3/Q9	M	
201	3.2.4.2.1.3.a	The DAS shall process input signals for Single Data Channel configurations of Balanced QPSK.		Q3/Q9	M	
202	3.2.4.2.1.3.b	The DAS shall process input signals for Single Data Channel configurations of Unbalanced QPSK.		Q3/Q9	M	
203	3.2.4.2.1.3.c	The DAS shall process input signals for Single Data Channel configurations of BPSK.		Q3/Q9	M	
204	3.2.4.2.1.3.d	The DAS shall process input signals for Dual Data Channel configurations of two independent convolutionally coded (rate 1/2) data signals.		Q3/Q9	M	
205	3.2.4.2.1.4.a	The DAS shall decode a signal with a convolutional, non-systematic, transparent code.		Q3/Q9	M	
206	3.2.4.2.1.4.b	The DAS shall decode a signal with a rate of 1/2.		Q3/Q9	M	
207	3.2.4.2.1.4.c	The DAS shall decode a signal with a Constraint Length of K = 7.		Q3/Q9	M	
208	3.2.4.2.1.4.d	The DAS shall decode a signal with Generator Functions of G_1 = 1111001 and G_2 = 1011011.		Q3/Q9	M	
209	3.2.4.2.1.4.e	The DAS shall decode a signal with Symbols generated from G_1 that precede symbols generated from G_2 relative to the data bit period.		Q3/Q9	M	
210	3.2.4.2.1.4.f	The DAS shall decode a signal with Symbols generated from G_2 that are either true or complemented as defined by the service specifications.		Q3/Q9	M	

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
211	3.2.4.2.1.5.a	The data phase ambiguity shall be resolved for all configurations and modes except when the data format is NRZ-L.		Q3/Q9	M	
212	3.2.4.2.1.6.a	The $L(P_E, R_b)$ for an R_b of 1 kbps and P_E of 10^{-5} shall be 3.0 dB.		Q3/Q9	M	
213	3.2.4.2.1.6.b	The $L(P_E, R_b)$ for an R_b of 10 kbps and P_E of 10^{-5} shall be 3.0 dB.		Q3/Q9	M	
214	3.2.4.2.1.6.c	The $L(P_E, R_b)$ for an R_b of 100 kbps and P_E of 10^{-5} shall be 3.0 dB.		Q3/Q9	M	
215	3.2.4.2.1.6.d	The $L(P_E,R_b)$ for an R_b of 1 kbps and P_E of 10^{-6} shall be 3.2 dB.		Q3/Q9	M	
216	3.2.4.2.1.6.e	The $L(P_E,R_b)$ for an R_b of 10 kbps and P_E of 10^{-6} shall be 3.2 dB.		Q3/Q9	M	
217	3.2.4.2.1.6.f	The $L(P_E,R_b)$ for an R_b of 100 kbps and P_E of 10^{-6} shall be 3.2 dB.		Q3/Q9	M	
218	3.2.4.2.1.6.g	The $L(P_E,R_b)$ for an R_b of 1 kbps and P_E of 10^{-7} shall be 3.4 dB.		Q3/Q9	M	
219	3.2.4.2.1.6.h	The $L(P_E,R_b)$ for an R_b of 10 kbps and P_E of 10^{-7} shall be 3.4 dB.		Q3/Q9	M	
220	3.2.4.2.1.6.i	The $L(P_E,R_b)$ for an R_b of 100 kbps and P_E of 10^{-7} shall be 3.4 dB.		Q3/Q9	M	
221	3.2.4.2.1.6.j	For NRZ-M and NRZ-S data formats, an additional implementation loss of 0.1 dB shall be allowed.		Q3/Q9	M	
222	3.2.4.2.1.6.k	The specified performance shall be achieved for each data channel at the decoder output.		Q3/Q9	M	
223	3.2.4.2.1.6.l	For balanced QPSK; Single Data Channel, a maximum 0.1 dB additional implementation loss relative to requirements 3.2.4.2.1.6.a through 3.2.4.2.1.6.k shall be allowed.		Q3/Q9	M	
224	3.2.4.2.1.6.m	The specified performance shall be achieved after signal acquisition has been completed and signal tracking has been achieved.		Q3/Q9	M	
225	3.2.4.2.1.6.n	The specified performance shall be achieved in the presence of Additive White Gaussian Noise.		Q3/Q9	M	
229	3.2.4.2.1.7.c	The acquisition time shall not exceed 1 second for a C/N_O value of 36.0 dB-Hz for Mode A or the C/N_o required for the $P_E = 10^{-5}$.		Q3/Q9	M	
230	3.2.4.2.1.7.d	The acquisition time shall not exceed 3 seconds for a C/N_O value of 36.0 dB-Hz for Mode B or the C/N_o required for the $P_E = 10^{-5}$.		Q3/Q9	M	
231	3.2.4.2.1.7.e	The probability of acquisition (P_{acq}) for the times specified in 3.2.4.2.1.7 b, c, and d shall be ≥ 0.9.		Q3/Q9	M	
232	3.2.4.2.1.7.f	In the event that acquisition does not occur within the time specified, the PN code shall be searched until acquisition occurs, or until the end of scheduled service.		Q3/Q9	M	
57	3.1.3.1.a	The DAS beamformer shall receive the output of the existing WSC System MA System EMC in accordance with the ICD between the DAS and the WSC.		Q4.1		C
61	3.1.3.1.e	The DAS interface from the EMC to the beamformer(s) shall support one-to-one and one-to-many connections.		Q4.1		C
62	3.1.3.1.f	The DAS beamformer(s) shall switch between EMC output(s).		Q4.1		C

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
67	3.1.4.1.a	The demodulator interfaces to the beamformer shall be one-to-one and one-to-many.		Q4.1		C
184	3.2.4.1.a	Each beamformer output shall be connected to any pre-assigned set of up to 16 demodulator inputs.		Q4.1		
108	3.1.7.1.a	The DAS shall provide status of all components that constitute the DAS to the LCM.		Q4.2		C
109	3.1.7.1.b	The DAS shall perform periodic and continuous statusing of all components that constitute DAS.		Q4.2		C
110	3.1.7.1.c	The DAS shall log all status of all components that constitute DAS.		Q4.2		C
111	3.1.7.1.d	The DAS shall support delogging of all collected status.		Q4.2		C
112	3.1.7.1.e	The DAS shall support printing of delogged status.		Q4.2		C
115	3.1.7.1.h	The DAS shall provide DAS Customer performance status data to the LCM.		Q4.2		C
117	3.1.7.1.j	The DAS shall support the disabling of status of any component that constitutes the DAS from the LCM.		Q4.2		C
118	3.1.7.1.k	The DAS shall support acknowledgement of an alert, allowing the alert to be cleared even though the abnormality still exists.		Q4.2		C
119	3.1.7.2.a	The DAS shall provide performance status data to the DAS Customer, if requested.		Q4.2		C
120	3.1.7.2.b	The DAS shall report the DAS Customer receive frequency in the performance status data.		Q4.2		C
121	3.1.7.3.a	The DAS shall provide service accounting statistics to the DAS LCM.		Q4.2		
122	3.1.7.3.b	The DAS shall allow the definition of a window for the service accounting statistics report to be input from the DAS LCM.		Q4.2		
123	3.1.7.3.c	The DAS shall report the duration of approved requests to the DAS LCM for the window specified.		Q4.2		
124	3.1.7.3.d	The DAS shall report the duration of actual DAS Customer supported events for the window specified.		Q4.2		
125	3.1.7.3.e	The DAS shall report the cumulative service accounting statistics for each DAS Customer for the window specified.		Q4.2		
126	3.1.7.3.f	The DAS shall report the cumulative service accounting statistics for each TDRS for the window specified.		Q4.2		
127	3.1.7.3.g	The DAS shall report the cumulative service accounting statistics for all DAS supported events for the window specified.		Q4.2		
128	3.1.7.3.h	The DAS shall support printing of the service accounting statistics report.		Q4.2		C
276	3.2.7.1.a	DAS shall log status of all components that constitute DAS every 1 second.		Q4.2		
277	3.2.7.1.b	DAS shall time stamp all delogged status outputs.		Q4.2		
278	3.2.7.1.c	DAS shall allow delogging of status based on data value changes only.		Q4.2		
279	3.2.7.1.d	DAS shall log an event alert when an operational abnormality occurs within 1 second of the occurrence of the abnormality.		Q4.2		
280	3.2.7.1.e	The DAS shall provide status of all components that constitute DAS on demand.		Q4.2		

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
281	3.2.7.1.f	The DAS shall provide DAS Customer performance status data to the LCM on demand.		Q4.2		
282	3.2.7.1.g	The DAS shall allow delogging of individual status measurands.		Q4.2		
284	3.2.7.2.a	The DAS shall provide performance status data to the DAS Customer at 1 minute intervals at the commencement of service.		Q4.2		
285	3.2.7.3.a	The service accounting statistics report shall be available at the LCM within 1 minute of the submitted request.		Q4.2		
129	3.1.8.1.a	The DAS shall place itself in a fully operational return data processing state in response to a system start-up command.		Q4.3		C
130	3.1.8.1.b	The DAS shall retain its current operational state resource allocation.		Q4.3		C
131	3.1.8.1.c	After a restart operations command has been issued, the DAS shall restore service to its last operational state.		Q4.3		C
132	3.1.8.1.d	The DAS shall report incremental status during the start up operations sequence to the DAS LCM.		Q4.3		
133	3.1.8.1.e	The DAS shall shutdown its operations in an orderly fashion in response to a system operations termination command.		Q4.3		C
134	3.1.8.1.f	The DAS shall report incremental status during the shut down operations sequence to the DAS LCM.		Q4.3		
135	3.1.8.1.g	The DAS shall detect changes in the DAS internal configuration data.		Q4.3		C
136	3.1.8.2.a	The DAS shall support adding and removing DAS resources from the pool of shared resources from the DAS LCM		Q4.3		C
137	3.1.8.2.b	The DAS shall change the allocation of resources assigned to the shared pool of resources without interrupting normal DAS operations.		Q4.3		C
140	3.1.8.3.c	The DAS shall allow authorized personnel to modify DAS Customer identification parameters without interrupting normal DAS operations.		Q4.3		C
141	3.1.8.3.d	The DAS shall allow the addition of new DAS Customers without interrupting DAS operations.		Q4.3		C
142	3.1.8.3.e	The DAS shall allow the deletion of existing DAS Customers without interrupting DAS operations.		Q4.3		C
144	3.1.9.a	The DAS implementation shall provide for modular expandability of beamformers.	A1	Q4.4	M	C
145	3.1.9.b	The DAS implementation shall provide for modular expandability of demodulators.	A1	Q4.4	M	C
293	4.2.1.b	The DAS shall have an MTTR not exceeding 30 minutes during the expected 10 year lifetime of the DAS.		Q4.5		
295	4.2.1.d	These MTTRs shall be applicable to GRGT for components with locally available sparing.		Q4.5		
297	4.2.2.b	Modes shall be provided to enable the repeating and/or bypassing of tests to check the operation of the subsystems while using internal or external test equipment.		Q4.5		

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
357	9.2.1.1.a	LRUs shall include rack-mounted equipment drawers and panels and other assemblies that can be removed by unplugging power and signal connectors without physically disturbing other LRUs. Other line replaceable items include printed circuit cards and other plug-in components within an LRU.		Q4.5		
377	11.1.a	The DAS shall conform to the requirements and procedures of NASA NPG 2810.1		Q4.6		
385	11.4.b	The DAS shall control access to DAS data by O&M personnel as defined in 530-WSC-0024		Q4.6		C
78	3.1.5.1.2.a	The DAS shall route Customer data to specified destination(s) in accordance with the ICD between the DAS and the DAS Customers.		Q6		C
79	3.1.5.1.2.b	The DAS shall route real-time MA return telemetry data to DAS Customer specified destination(s).		Q6		C
80	3.1.5.1.2.d	The DAS shall route retrieved archived MA return telemetry data to DAS Customer specified destination(s).		Q6		C
81	3.1.5.1.2.g	The DAS shall route Customer service performance data to the DAS Customer specified destination(s) in accordance with the ICD between DAS and the SWSI.		Q6		C
82	3.1.5.1.3.a	The DAS shall retrieve archived return data based on DAS Customer request.		Q6		C
83	3.1.5.1.3.b	The DAS shall update the service accounting statistics with the return data retrieval statistics.		Q6		C
84	3.1.5.1.4.a	The DAS shall establish connection(s) with destination(s) to send return data.		Q6		C
85	3.1.5.1.4.b	The DAS shall automatically re-establish a connection when the connection to a destination is severed.		Q6		C
86	3.1.5.1.4.c	The DAS shall log the transmit status in the DAS Customer service accounting data.		Q6		
87	3.1.5.1.4.d	The DAS shall route real-time and archived return data to a DAS Customer simultaneously, if requested.		Q6		C
88	3.1.5.1.4.e	The DAS shall manage the utilization of the GRGT-to-WSGT DAS allocated aggregate bandwidth to support real-time and archived retrieval supports.		Q6		C
89	3.1.5.1.4.f	The DAS shall manage the utilization of the WSC DAS allocated aggregate bandwidth to support real-time and archived retrieval supports.		Q6		C
90	3.1.5.1.4.g	The GRGT-to-WSC and WSC DAS allocated aggregate bandwidths shall be values that can be input and modified from the DAS LCM.		Q6		C
91	3.1.5.2.1.a	The DAS shall archive all real-time return data		Q6		C
92	3.1.5.2.1.b	The DAS shall maintain DAS Customer data for the retention duration requested by the DAS Customer.		Q6		C
93	3.1.5.2.1.c	The DAS shall update the resource usage statistics with the resource information, resource requested and time periods for archiving.		Q6		
94	3.1.5.2.1.d	The DAS shall log the storage statistics in the DAS Customer service accounting data		Q6		
96	3.1.5.2.2.b	The DAS shall automatically remove archived data that has exceeded the limit based on the Customer data distribution specifications.		Q6		

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SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
97	3.1.5.2.2.c	The DAS shall automatically remove archived data that has exceeded the pre-set limits defined by configuration management.		Q6		
98	3.1.5.2.2.d	The DAS shall log the purge events in the DAS Customer service accounting data.		Q6		C
258	3.2.5.1.1.a	The DAS shall support Internet Protocol (IP) for routing data to Customers.		Q6		
265	3.2.5.1.3.a	The DAS shall respond to the retrieve archived return data request within 30 seconds.		Q6		C
266	3.2.5.1.3.b	The DAS shall retrieve and transmit archived data within 1 minute of the specified time.		Q6		C
267	3.2.5.1.3.c	The DAS shall reject archived data retrieval requests received within 1 minute of the request start time.		Q6		C
268	3.2.5.1.4.a	The DAS shall transmit return data, within the WSC DAS allocated aggregate bandwidth, to a maximum of 50 DAS Customers simultaneously.		Q6		C
271	3.2.5.2.1.c	Archived data shall be overwritten on a first in, first out basis.		Q6		
272	3.2.5.2.1.d	Notification shall be provided to the DAS LCM when the archived storage device is 90 percent full.		Q6		
273	3.2.5.2.1.e	The defined maximum allowed storage duration shall be changeable at the DAS LCM.		Q6		
274	3.2.5.2.1.f	The defined maximum storage capacity limit shall be changeable at the DAS LCM.		Q6		
113	3.1.7.1.f	The DAS shall indicate via an alert to the WSC TOCC when abnormalities are detected in DAS operations and resources.		Q8		C
75	3.1.4.2.1.i	The DAS shall consider the Customer oscillator frequency uncertainty and signal dynamics when acquiring the Customer signal.		Q9		
289	3.3.4.a	The DAS shall interface with the WSC Systems in accordance with the specifications in the ICD between the DAS and the White Sands Complex.		Q13 Q10	M	C
320	5.4.g	All DAS equipment shall comply with STGT-HE-04-04, USS RF Equipment Group HWCI Specification Section 3.3.4.2 for Electromagnetic Compatibility Control.		Q11		
319	5.4.f	DAS equipment shall not be effected by conducted or radiated emissions resulting from the operation of existing equipment.		Q12		
321	5.4.h	DAS equipment conducted and radiated emissions shall not effect existing equipment.		Q12		
286	3.3.1.a	The DAS shall interface with the SWSI in accordance with the specifications in the ICD between DAS and SWSI.		Q13		C
287	3.3.3.a	The DAS shall exchange information with DAS Customers in accordance with the specifications in the ICD between the DAS and DAS Customers.		Q13		C
288	3.3.3.b	The DAS shall exchange information with DAS Customers in accordance with the specifications in the ICD between the DAS and SWSI		Q13		C
289	3.3.4.a	The DAS shall interface with the WSC Systems in accordance with the specifications in the ICD between the DAS and the White Sands Complex.		Q13 Q10	M	C

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SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
144	3.1.9.a	The DAS implementation shall provide for modular expandability of beamformers.	A1	Q4.4	M	C
145	3.1.9.b	The DAS implementation shall provide for modular expandability of demodulators.	A1	Q4.4	M	C
198	3.2.4.2.1.2.a	The DAS equipment shall not be damaged or cumulatively degraded by the input signal.	A3			
199	3.2.4.2.1.2.b	The DAS shall not extend the effect of each pulse by more than 100 ns.	A3			
200	3.2.4.2.1.2.c	The DAS shall provide for the operation of all signal processing functions in the presence of pulsed RFI.	A3			
226	3.2.4.2.1.6.o	The specified performance shall be achieved when the signals at the LNA input contain the signal characteristics of Paragraph 3.2.4.2.1.2.	A3			
241	3.2.4.2.1.13.a	The DAS shall accommodate an input C/N_O variation of 12 dB, at a rate not to exceed 10 dB/sec, without requiring a reconfiguration.	A3	Q3	M	
242	3.2.4.2.1.14.a	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Data asymmetry $\leq \pm$ 3%	A3			
243	3.2.4.2.1.14.b	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Data transition time $\leq$ 5% of bit time but no less than 35 nsec	A3			
244	3.2.4.2.1.14.c	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: I/Q data skew (relative to requirements for I/Q data synchronization) $\leq$ 3%	A3			
245	3.2.4.2.1.14.d	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: I/Q PN chip skew (relative to 0.50 chip) $\leq$ 0.01 chip	A3			
246	3.2.4.2.1.14.e	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: PN code power suppression < 0.3 dB	A3			
247	3.2.4.2.1.14.f	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: PN chip rate (relative to absolute coherence with carrier rate) $\leq$ 0.01 Hz at PN rate	A3			
248	3.2.4.2.1.14.g	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: BPSK phase imbalance $\leq \pm$ 3°	A3			
249	3.2.4.2.1.14.h	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Gain imbalance $\leq \pm$ 0.25 dB	A3			
250	3.2.4.2.1.14.i	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: QPSK phase imbalance 90 ± 3°	A3			
251	3.2.4.2.1.14.j	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: AM/PM $\leq$ 12°/dB	A3			

1	2	3	4	5	6	7
SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
252	3.2.4.2.1.14.k	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Spurious PM (100 Hz to 3 MHz) $\leq$ 3° rms	A3			
253	3.2.4.2.1.14.l	The DAS shall provide for operation of all signal processing functions with an input signal containing the following additional distortion: Incidental AM (3σ) (at frequencies > 10 Hz for data rates < 1 kbps; at frequencies > 100 Hz for data rates $\geq$ 1 kbps) $\leq$ 6%	A3			
235	3.2.4.2.1.9.a	Normal Transition Density: The mean time between slips caused by a cycle slip in the symbol clock recovery loop shall be either no less than 90 minutes or no less than 10^{10} clock cycles, whichever is greater, for the C/N_0 required for 10^{-5} P_E performance. This requirement applies for transition densities of at least 40% for NRZ symbols and any transition density for biphase symbols.	A4			
236	3.2.4.2.1.9.b	Low Transition Density. The mean time between slips caused by a cycle slip in the symbol clock recovery loop shall be either no less than 90 minutes or no less than 10^{10} clock cycles, whichever is greater, for 1.0 dB more C/N_0 than required for 10^{-5} P_E performance. This requirement applies for NRZ symbol transition densities between 25% and 40%.	A4			
237	3.2.4.2.1.10.a	The mean time-to-cycle slip in tracking the carrier shall be greater than or equal to 90 minutes for a 3 dB less C/N_0 than required for 10^{-5} P_E performance.	A4			
238	3.2.4.2.1.11.a	During signal acquisition and signal tracking, DAS services shall be protected against false carrier acquisition and false acquisition to PN code sidebands, including multipath.	A5			
255	3.2.4.2.1.16.b	The most recent commanded frequency offset shall be used to aid reacquisition.	A5			
256	3.2.4.2.1.16.c	Reacquisition time shall be less than or equal to the initial acquisition times specified in Section 3.2.4.2.1.7.c and 3.2.4.2.1.7.d.	A5			
95	3.1.5.2.2.a	The DAS shall have a defined maximum allowed storage duration.	A6			
269	3.2.5.2.1.a	The DAS shall provide no less than 100 Mbytes of storage space to archive return data.	A6			
283	3.2.7.1.h	The DAS shall maintain system status log data for at least 45 days (TBR).	A6			
290	4.1.1.a	The Parts Count Reliability prediction method of MIL-HDBK-217 shall be used in the initial stages of system design.	A7			
291	4.1.1.b	The reliability prediction method shall shift to the Parts Stress Analysis Prediction method, or other reliability modelling technique approved by NASA, at the time when a firm, detailed parts list is available.	A7			
292	4.2.1.a	A Maintainability Status Report shall be provided in accordance with Task 104 of MIL HDBK-470a, Designing and Developing maintainable Products and Systems, and include any changes in predicted maintainability parameters.	A7			

1	2	3	4	5	6	7
SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
294	4.2.1.c	The maximum time to repair shall not exceed 1 hour for the 90th percentile of failures.	A7			
296	4.2.2.a	Failures shall be isolated to one chassis or Line Replaceable Unit (LRU), whichever is smaller. Manual intervention can be used to isolate failures to below the chassis or LRU level.	A7			
298	4.3.a	The inherent availability for any period of 10,000 hours shall be 0.995.	A7			
299	4.4.a	For each DAS there shall be a communications path from the output of the EMC to the Data routing and Archiving external interface.	A7			
300	4.4.1.a	Available service time is measured over a contiguous 10,000 hour interval except that any loss of availability due to loss of facility services such as power or air conditioning, or loss of system capability resulting from unusual weather conditions, such as icing or severe rain storms, shall not be counted.	A7			
301	4.4.1.b	The time service is not available shall include all times service is not available due to corrective maintenance downtime, administrative downtime, logistics supply downtime, and preventive maintenance downtime.	A7			
332	8.1.a	Training policies, plans and procedures shall provide for orderly transition into sustained operations and maintenance.	A8			
333	8.2.a	Training shall prepare operations and maintenance personnel, including both Government and contractor employees, to operate, maintain, and support the DAS.	A8			
334	8.2.b	Operations personnel shall be trained to perform operations functions in accordance with WSC Local Operations Procedures (LOPs).	A8			
335	8.2.c	Maintenance technicians shall be trained to maintain DAS subsystems in order to meet the maintainability requirements. This includes training in the maintenance of software and firmware using the facilities provided in the SMTF.	A8			
336	8.2.d	The maximum amount of training shall be performed at the WSC. Training shall be conducted at other sites, such as vendor facilities, when it is cost effective to the Government.	A8			
337	8.2.e	The course material shall be modularized, individualized, and use multimedia learning resources including manuals, study guides, workbooks and audiovisual materials as appropriate.	A8			
338	8.2.f	The initial training program shall concentrate on maintenance and operations.	A8			
339	8.2.g	Students for further training programs shall include NASA instructors, cognizant NASA technical personnel, NASA system engineers and WSC Operations and Maintenance (O&M) contractor personnel.	A8			
355	9.2.a	Procedures shall be developed using 500-tip-2111, Content Specification for Operation and Maintenance Manuals, as a guideline.	A9			
356	9.2.b	Any state-of-the-art techniques that are developed for the DAS shall be included in the procedures.	A9			

1	2	3	4	5	6	7
SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
358	9.2.1.2.a	First level maintenance shall include scheduled preventive maintenance.	A9			
359	9.2.1.2.b	First level maintenance shall include fault isolating to the level of an LRU.	A9			
361	9.2.1.2.d	First level maintenance shall include replacement of a failed LRU or line replaceable element within an LRU.	A9			
362	9.2.1.2.e	First level maintenance shall include testing to ensure that the system/subsystem has been restored to operational condition.	A9			
363	9.2.1.2.f	First level maintenance shall include alignment and tuning.	A9			
76	3.1.5.1.1.a	Deleted	D			
116	3.1.7.1.i	Deleted	D			
260	3.2.5.1.1.c	The DAS shall support routing serial, bit-stream contiguous data to Customers	D			
351	8.4.2.e	Software-unique maintenance training shall include debugging techniques and high order language (HOL) use. * *Currently no funding*	D			
360	9.2.1.2.c	Fault isolation to the level of a line replaceable item within an LRU (if any) shall be performed if the time required is consistent with the operational maintainability requirement	D			
364	9.2.1.3.a	Second level maintenance actions shall include localization of a failure to the piece-part or equipment component level, as appropriate	D			
365	9.2.1.3.b	Second level maintenance actions shall include disassembly and removal of the failed piece-part or equipment component.	D			
366	9.2.1.3.c	Second level maintenance actions shall include replacement of failed elements and reassembly.	D			
367	9.2.1.3.d	Second level maintenance actions shall include bench testing to ensure performance to the specified level.	D			
368	9.2.2	Software maintenance, including debugging, modification, and enhancement of system software packages, shall be performed in the SMTF	D			
58	3.1.3.1.b	The DAS shall support the Pointing beamforming modes.	I1			
59	3.1.3.1.c	The DAS shall support the Adaptive beamforming mode.	I1			
60	3.1.3.1.d	The DAS shall support the Fixed Weight beamforming mode.	I1			
63	3.1.3.1.g	The DAS shall weight and sum signals from selected EMC(s).	I1			
64	3.1.3.1.h	The DAS shall output the weighted-sum signal(s).	I1			
65	3.1.3.1.i	The DAS shall switch out any of the element channels upon request.	I1			
66	3.1.3.1.j	The DAS shall automatically null interfering signals, when in adaptive nulling mode.	I1			
170	3.2.3.1.a	The DAS shall form a beam such that the C/N_o of the formed beam is within 0.5 dB of the algebraic sum of the individual C/N_o's of the 30 element channels.	I1			
171	3.2.3.1.b	The DAS shall generate weights such that the calculated transfer function (gain and phase) of the sum signal does not change as a result of the update, as long as the calibration vector is constant.	I1			
172	3.2.3.1.c	The DAS shall form simultaneous independent beams independently.	I1			

1	2	3	4	5	6	7
SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
173	3.2.3.1.d	The DAS shall have the capability of forming a beam centered at any commandable angle within a cone of 27° solid angle centered on the boresight of the TDRS MA antenna array.	I1			
174	3.2.3.1.e	The DAS shall output a beamformed signal with an output signal level of –4 dBm ± 2.0 dBm for a nominal input signal level of -20 dBFS.	I1			
175	3.2.3.1.f	The DAS shall output a beamformed signal that linearly follow the input signal level (within ± 0.5 dB) over the dynamic range of –12.3 dB to + 4 dB about the nominal input signal level of -20 dBFS.	I1			
176	3.2.3.1.g	The DAS shall re-establish all Customer beams within 10 seconds following a loss and subsequent restoration of the EMC output signals.	I1			
177	3.2.3.1.h	In adaptive beamforming mode, the DAS shall form a null on an interfering signal within 2 seconds from the time the covariance matrix 'containing' the interferer is provided to the DAS from the EMC.	I1			
178	3.2.3.1.i	In adaptive beamforming mode, the DAS shall automatically null interfering signals by implementing an algorithm that maximizes the Customer signal to interference plus noise ratio in the 6 MHz channel bandwidth.	I1			
179	3.2.3.1.j	In adaptive beamforming mode, for a single interferer having a level of 10 dB above the average element power and located outside the main lobe, the DAS shall null the interferer by at least 10 dB, for 95 percent of all possible combinations of main lobe positions and interferer locations for null locations which are fixed points on the surface of the earth.	I1			
180	3.2.3.1.k	In adaptive beamforming mode, for a single interferer having a level of 10 dB above the average element power and located outside the main lobe, the DAS shall null the interferer by at least 10 dB, for 95 percent of all possible combinations of main lobe positions and interferer locations with the main lobe which is defined as a cone of 3° of solid angle, centered about the commanded pointing direction.	I1			
181	3.2.3.1.l	In adaptive beamforming mode, the DAS shall update beam weights at a rate sufficient to maintain the required null depth while meeting the required beam quality.	I1			
182	3.2.3.1.m	In adaptive beamforming mode, the adaptive nulling requirements shall apply to (Continuous Wave) CW interferers and to interferers of any spectral composition within the 6 MHz element channel bandwidth.	I1			
183	3.2.3.1.n	In adaptive beamforming mode, beamforming requirements 3.2.3.1.a through 3.2.3.1.m shall apply during nulling, except for output C/No.	I1			
114	3.1.7.1.g	The DAS shall provide status indicators on the equipment front panels of all components that constitute DAS.	I2			
302	5.1.1.a	All chassis, subsystems and systems of new design or significantly modified design shall be designed and constructed to comply with the requirements of STDN-SPEC-4.	I3			
303	5.1.1.b	Section 3.16 of STDN-SPEC-4, Maintainability shall not apply.	I3			

1	2	3	4	5	6	7
SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
304	5.1.1.c	Maintainability provisions of this specification shall be used.	I3			
305	5.1.1.d	Programmable semiconductor devices in any chassis shall be handled in accordance with the provisions of STDN-SPEC-3.	I3			
306	5.1.1.e	Connectors, cable, wires and other materials listed in STDN-SPEC-8, GSFC Specification for Electronic Equipment Installation Materials shall be used in the design and construction of WSC equipment. Use of materials other than those in STDN-SPEC-8 will require a waiver from the DAS Product Manager.	I3			
307	5.2.a	DAS equipment shall be mounted in electronic equipment racks which conform to STDN No. 270.5, GSFC Specification Electronic Equipment Racks.	I3			
308	5.2.b	Tapped panel mounting holes shall be included (Section 6.8 of STDN No. 270.5).	I3			
309	5.2.c	If required to meet the Electromagnetic Interference (EMI) requirements for the WSC, the Electromagnetic Compatibility option (Section 6.10 of STDN No. 270.5) shall be used where necessary.	I3			
310	5.2.d	If racks in excess of the standard 19-inch panel width are required for mounting some equipment, Section 6.14 of STDN No. 270.5 shall apply.	I3			
311	5.2.e	Equipment consoles shall comply with the requirements of Section 6.18 of STDN No. 270.5. If size constraints of standard equipment require console construction that differs from the requirements of Section 6.17, or if the contractor desires to use consoles, which are not in compliance with Section 6.17 of STDN No. 270.5, then a waiver will be required from the DAS Product Manager.	I3			
312	5.3.a	Each rack shall be provided with an input/output (bulkhead) panel in accordance with Section 3.7a of STDN-SPEC-4.	I3			
313	5.3.b	All cabling between DAS delivered systems and subsystems and WSC Systems shall be provided.	I3			
314	5.3.c	All mating connectors shall be supplied.	I3			
315	5.3.d	All cabling required to configure the systems and subsystems for checkout and in-plant testing shall be provided. This includes cabling required at the WSGT/STGT and GRGT sites for all special test equipment.	I3			
316	5.4.c	The operational convenience of the DAS shall be maintained while satisfying the above requirements by the exclusion of rack front doors, hidden controls and displays, and by the location of equipment in the system racks.	I4			
317	5.4.d	EMI racks and filtering shall be used as required.	I4			
318	5.4.e	All controls and displays shall be fully accessible during setup and normal operation of the DAS.	I4			
322	6.1.1.a	WSC-provided site documents shall be used in planning the configuration and layout of equipment.	I5			
323	6.1.1.b	A set of plans shall be developed that provides an efficient layout of all equipment.	I5			
324	6.1.1.c	The site plan shall provide drawings that specify the type, size, length, number, and layout of conductors for all signal and power cabling necessary for equipment operation.	I5			

1	2	3	4	5	6	7
SRD Req ID #	**SRD Parag.**	**Requirement**	**Analysis (A) Inspection (I) SWSI (S) Deleted (D)**	**Test Sub-case #**	**Multiple Cases (M)**	**Conditional (C)**
325	6.1.1.d	The site plan shall contain, for each major component: the BTUs emitted; the electrical power requirements by KVA, Hertz, Volts and power conditioning; and the floor space area occupied by each rack or multiple rack system.	I5			
326	6.1.1.e	The equipment installation shall be documented in accordance with the requirements of the WSC Handbook Series, Volume VII, Engineering, 530-WSC-LOP-VII and, the Specification Station Handbook Documentation, STDN-SPEC-10.	I5			
327	6.2.a	All power and signal cables necessary for equipment operations shall be provided.	I5			
328	6.2.b	Cable installation shall be in accordance with the requirements of STDN-SPEC-6, GSFC Specification Installation Requirements for STDN Equipment.	I5			
329	6.2.c	All cable fabrication shall be in accordance with the requirements of STDN-SPEC-4, Section 3.7.	I5			
330	6.3.a	Equipment installations shall be in accordance with STDN-SPEC-6, Installation Requirements for STDN Equipment	I5			
331	6.3.b	Floor panels shall be in accordance with the requirements of STDN-SPEC-6	I5			
340	8.3.a	The training program shall include a definition of the qualifications required by operations and maintenance personnel to meet position description skill requirements.	I6			
341	8.3.b	A training plan to define the phasing, methods and techniques for achieving the requisite skill levels, using curricula and course materials for skill/qualification areas within each position description shall be included.	I6			
342	8.3.c	Training devices and equipment shall be included.	I6			
343	8.3.d	Administrative support to implement the training program shall be included.	I6			
344	8.4.1.a	Operator training shall cover a DAS network overview.	I6			
345	8.4.1.b	Operator training shall cover the DAS concept of operations including key design features.	I6			
346	8.4.1.c	Operator training shall cover detailed DAS operational procedures.	I6			
347	8.4.2.a	Maintenance training for both hardware and software shall cover DAS maintenance concept.	I6			
348	8.4.2.b	Maintenance training for both hardware and software shall cover diagnostics and troubleshooting.	I6			
349	8.4.2.c	Maintenance training for both hardware and software shall cover detailed repair procedures and techniques including the use of available tools and repair equipment.	I6			
350	8.4.2.d	Maintenance training for both hardware and software shall cover DAS software maintenance concepts.	I6			
352	8.4.2.f	Training shall cover maintenance of both operational and support software.	I6			
353	8.5.a	DAS training devices and equipment for maintenance training shall be specified in the Training Plan.	I6			
354	8.6.a	Administrative support for training shall provide for the testing and certification of students.	I6			

1	2	3	4	5	6	7
SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
369	10.1.a	Spares provisioning for the WSC shall be determined and provided by the development contractor through Provisional Acceptance Testing	I7			
370	10.1.b	A series of provisioning conferences shall be supported to develop the spares provisioning program in accordance with STDN 507, Network Logistics Manual.	I7			
371	10.1.c	All support spares remaining after Acceptance testing shall be delivered to the WSC site.	I7			
372	10.1.d	The information required to develop, implement and maintain operation of this spares provisioning program, consistent with the DAS requirements contained in this Specification and the spares provisioning requirements identified in the following sections.	I7			
373	10.3.a	The initial spares provisioning shall be determined.	I7			
374	10.3.b	The proposed spare parts and quantities shall be based upon satisfying the availability and maintainability requirements of this Specification.	I7			
375	10.4.1.a	It shall be ensured that either spare parts are available for a period of 10 years after Final Acceptance Testing or that NASA be provided advance notice of intent to discontinue manufacture of parts/components by all levels of subcontractors.	I7			
376	10.4.a	Technical data shall be provided to allow for procurement of spare parts directly from the actual manufacturer of the equipment.	I7			
378	11.2.a	The DAS IT Security Boundary for Customer control and status shall be at the interface to the SWSI.	I8			
379	11.2.b	The DAS IT Security Boundary for NISN Closed IOnet telemetry delivery shall be at the WSC Closed IOnet interface	I8			
380	11.2.c	The DAS IT Security Boundary for Internet telemetry delivery shall be at the interface with the NISN Secure Gateway defined in 290-003	I8			
381	11.2.d	The DAS Physical Security Boundary shall be within the Category II Limited Areas defined in 530-WSC-0009	I8			
382	11.3.a	The DAS connection to the SWSI interface shall be via the Closed IOnet only	I8			
383	11.3.b	The DAS connection to the NISN Secure Gateway shall be via the Closed IOnet only	I8			
77	3.1.5.1.1.b	The DAS shall route CCSDS compatible return data. (TBD)	I9			
146	3.1.9.c	The DAS implementation shall provide for modular expandability for archiving Customer data.	I9			
147	3.1.9.d	The DAS implementation shall provide for modular expandability for routing Customer data.	I9			
148	3.1.9.e	The DAS implementation shall provide for modular expandability for processing function.	I9			
149	3.1.9.f	The DAS shall provide for modular upgrades to support future CCSDS compatible telemetry formats.	I9			
259	3.2.5.1.1.b	The DAS shall support frame sync based CCSDS protocol for routing data to Customers. (TBD)	I9			
261	3.2.5.1.1.d	The DAS shall support the IP Data Unit (IPDU) ground transport header.	I9			

1	2	3	4	5	6	7
SRD Req ID #	SRD Parag.	Requirement	Analysis (A) Inspection (I) SWSI (S) Deleted (D)	Test Sub-case #	Multiple Cases (M)	Conditional (C)
262	3.2.5.1.1.e	The DAS shall support the ACE SFDU ground transport header.	I9			
263	3.2.5.1.1.f	The DAS shall support the AXAF-1 SFDU ground transport header.	I9			
264	3.2.5.1.1.g	The DAS shall support the LEO-T ground transport header.	I9			
270	3.2.5.2.1.b	The DAS shall simultaneously manage archiving up to 50 return data streams.	I9			
1	3.1.1.a	The DAS shall process DAS Customer system access identification information as part of DAS logon procedures.	S			
36	3.1.2.3.2.a	The DAS shall ensure that a DAS Customer is restricted from modifying requests submitted by other DAS Customers.	S			
104	3.1.6.f	The DAS shall accept DAS Customer authorization parameters from the DAS LCM.	S			
105	3.1.6.g	The DAS shall report the current DAS Customer authorization parameters to the DAS LCM.	S			
138	3.1.8.3.a	The DAS shall allow only authorized personnel to access DAS Customer authorization data.	S			C
139	3.1.8.3.b	The DAS shall retain Customer authorization data.	S			C
143	3.1.8.3.f	The DAS shall report the stored Customer authorization data to authorized personnel only.	S			C
150	3.2.1.a	The DAS shall report the results of a DAS Customer authorization check within 10 seconds of the receipt of the logon request. (TBD)	S			
151	3.2.1.1.a	The DAS shall permit each DAS Customer to simultaneously maintain up to 10 resource allocation configuration data sets.	S			
384	11.4.a	The DAS shall ensure that only specifically authorized Customers have access to their specific Customer data	S			

Exhibit A-2: SRD Requirement Traceability Sorted by Test Case

APPENDIX B. DAS GUI SCREEN DESCRIPTIONS

B.1 DAS CONTROLLER (DASCON)

B.1.1 DASCON Executables

The DASCON Computer Software Configuration Item (CSCI) resides on a Dell 2500 PowerEdge 19'' rack-mounted 933 MHz Pentium III based PC. DASCON requires Red Hat Linux v7.0 as the operating system and Oracle 8i as a database engine to control the update and archiving of status information received from the equipment. The DASCON PC contains 512 MB of Random Access Memory (RAM), four 18 GB RAID drives, a 1.44 MB floppy drive, a CD-RW drive, a CD-ROM drive, an on board 10/100 Ethernet adapter, a dual ported 10/100 Ethernet adapter, standard keyboard, mouse and video interfaces. The DASCON CSCI will provide a GUI to allow operators to enter commands and display all the status information. Status information is received at interface CSCs and stored to the database.

B.1.2 DASCON MMI Screens

The following are the MMI screens employed by DASCON:

DASCON Window – This screen displays the ITT logo button and automatically invokes the Main Alert Window. It also allows the operator to invoke Main Alert Window by clicking on the ITT logo. The DASCON Window is shown in Exhibit B.1-1

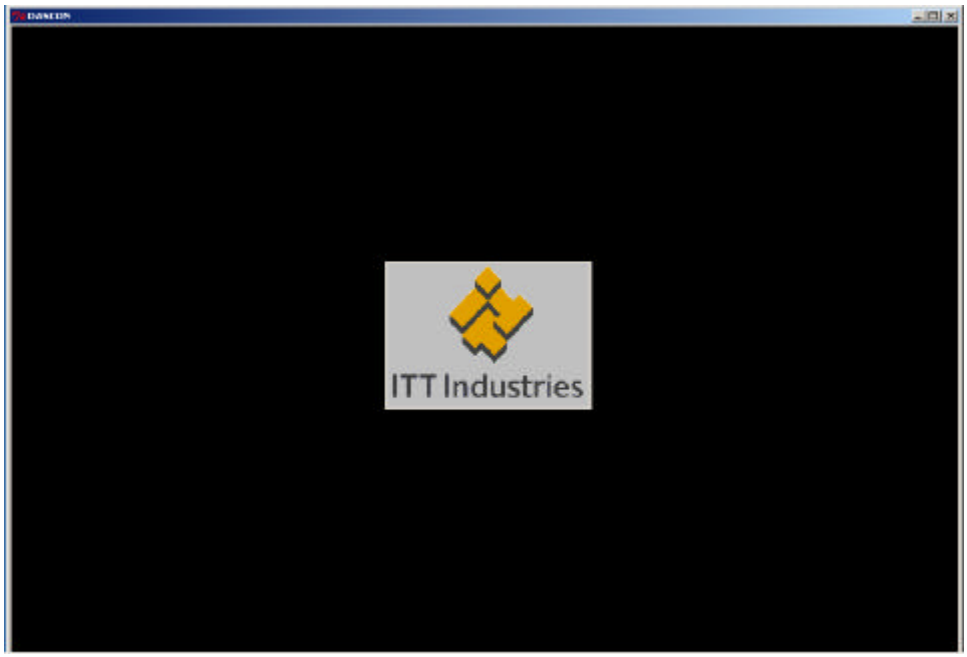

Exhibit B.1-1: DASCON Window

Main Alert Window – This screen displays the status of DASCON and the status received from WSC and GRGT. It also shows the connections between DASCON and WSC/GRGT, the connection between WSC

and GRGT and the connection between WSC and I/O Net. This window also displays the alert message and current time in the lower portion of the screen. The Main Alert Window is shown in Exhibit B.1-2.

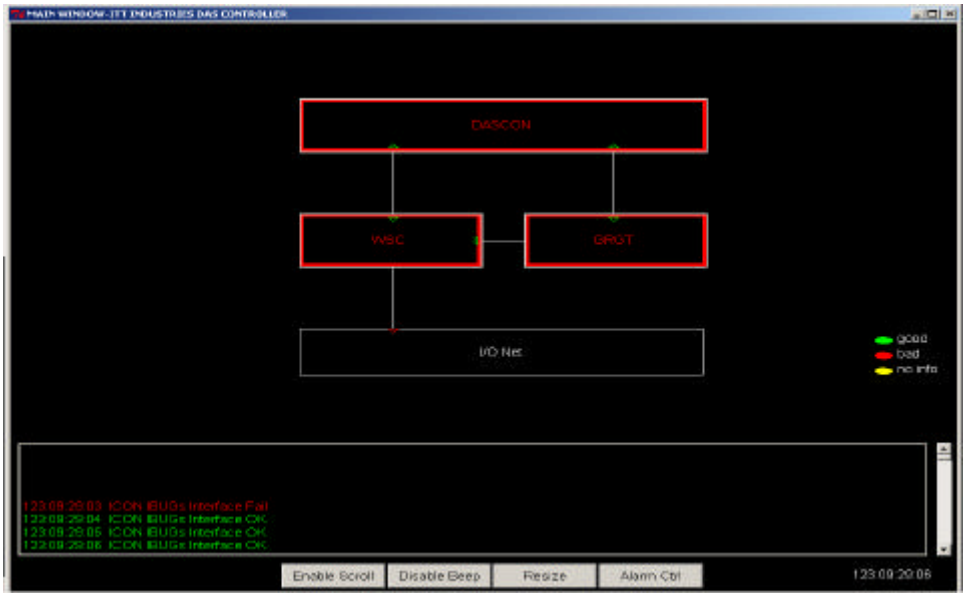

Exhibit B.1-2: Main Alert Window

DASCON Alarm Control Window – This window allows the operator to enable or disable the alarm sent out via SSC. It includes 2 sub-windows. They are WSC Alarm Control sub-window and GRGT Alarm Control Sub-window. The DASCON Alarm Control Window is shown in Exhibit B.1-3.

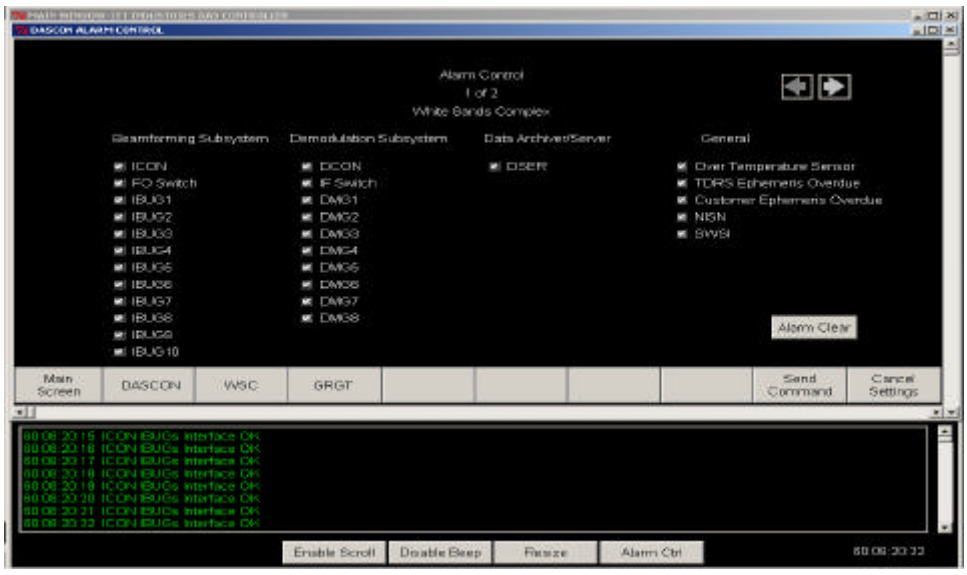

Exhibit B.1-3: DASCON Alarm Control Window

DASCON Main Window – This screen will display the status of EMC/ECON, IBUG/ICON, DMG/DCON, and PTP for both WSC and GRGT. It also displays the connections between DASCON and SWSI, ECON, ICON, DCON, PTP of WSC and GRGT. This window also displays the software status

(status button) and DASCON power supply status (box). The DASCON Main Window is shown in Exhibit B.1-4.

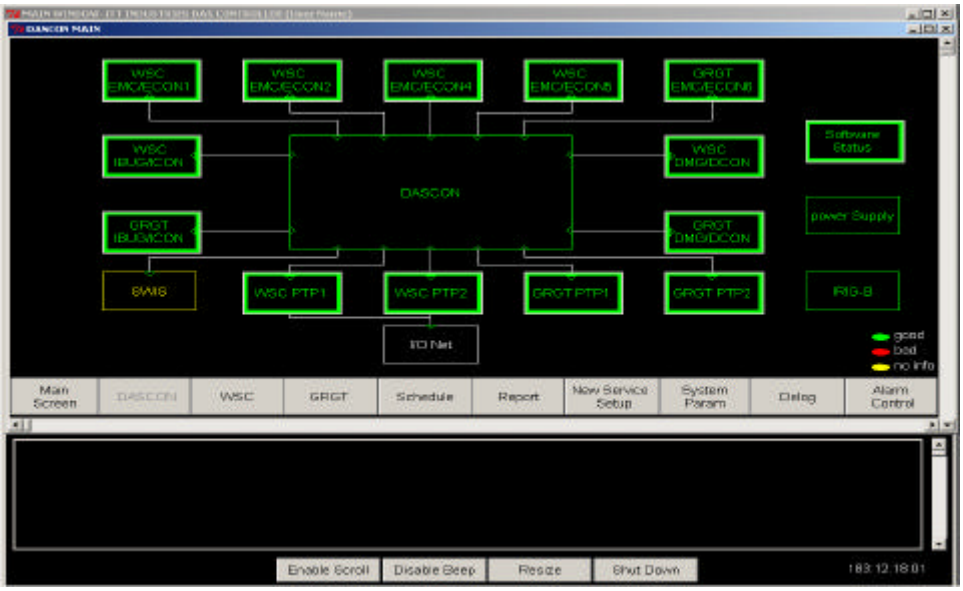

Exhibit B.1-4: DASCON Main Window

DASCON Software Status Window – This screen displays the status of the DASCON software. The screen includes software fault, operating system fault and task fault. The DASCON Software Status Window will be updated once per second. It can invoke other windows such as Main Screen, DASCON Main Window, WSC Main Window and GRGT Main Window. The Software Status Window is shown in Exhibit B.1-5.

Exhibit B.1-5: DASCON Software Status Window

Schedule Maintenance Window – This screen displays the cumulative resource usage of the DASCON per SGLT. The screen also allows the operator to enter the time slot for maintenance where a SGLT is then

made not available. During a maintenance window, the DASCON will not schedule resources needing that SGLT. For customers that are affected by maintenance, the DASCON will attempt to reallocate resources to satisfy their requirements. The Schedule Maintenance Window is not updated as it provides a snapshot. It can invoke other windows such as the Main Screen, DASCON Main Window, WSC Main Window, GRGT Main Window, the Customer Administration Window and the Delog Window. The Schedule Maintenance Window is shown in Exhibit B.1-6.

Exhibit B.1-6: Schedule Maintenance Window

DASCON Schedule-SGLT Window – This screen displays the 7 day service schedule for each event of the specified SGLT. The DASCON Schedule-SGLT Window is shown in Exhibit B.1-7.

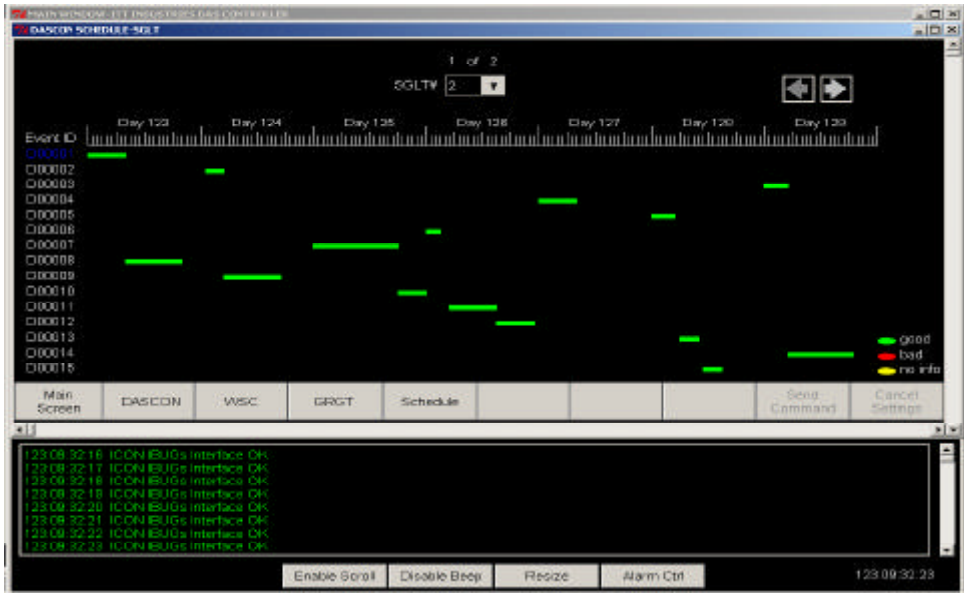

Exhibit B.1-7: DASCON Schedule-SGLT Window

DASCON Event Window – This screen displays details of an event for the specified SGLT. The DASCON Event Window is shown in Exhibit B.1-8.

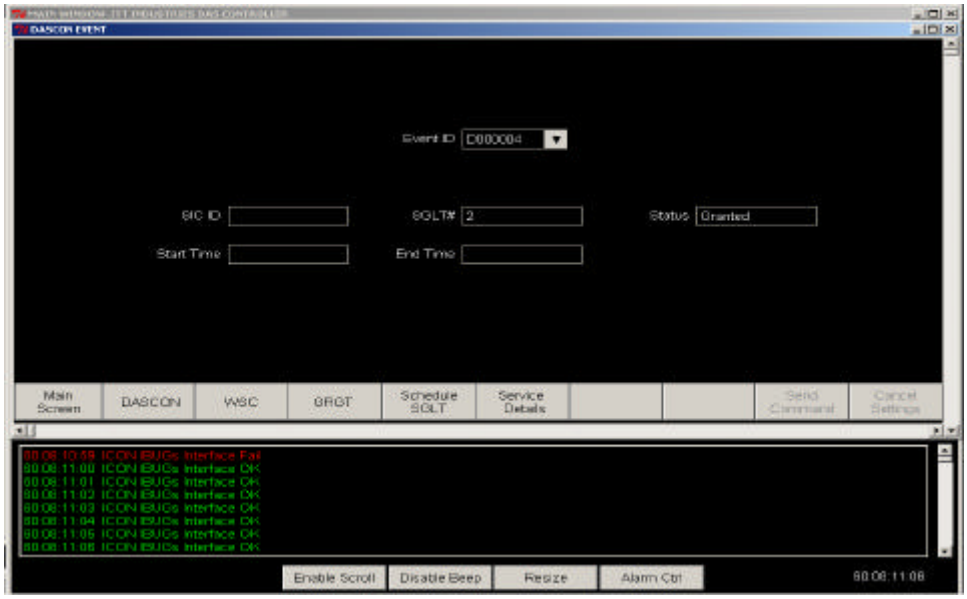

Exhibit B.1-8: DASCON Event Window

DASCON Report Window – This screen allows the operator to read the data from the database during the specified start time to the end time based on the type operator selected. The file is then written to the file specified by the operator. The DASCON Report Window is shown in Exhibit B.1-9.

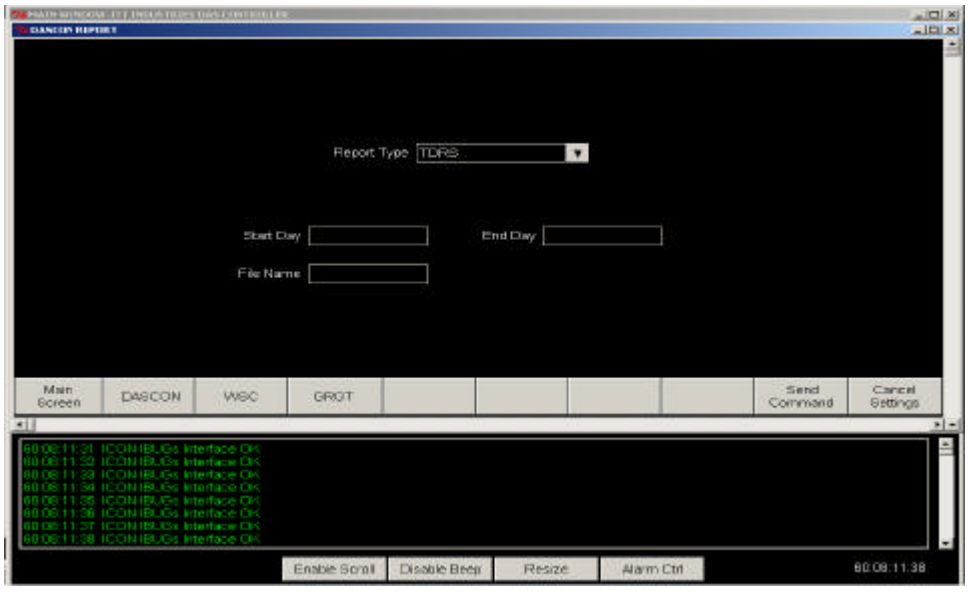

Exhibit B.1-9: DASCON Report Window

DASCON Service Setup – This screen allows the operator to setup a service event for user when the SWSI is down or for the resource maintenance. This window includes 5 pages, they are Service Detail sub-window (Exhibit B.1-10), IBU Configuration sub-window (Exhibit B.1-11), DMU Configuration sub-window (Exhibit B.1-12), DSER User Configuration sub-window (Exhibit B.1-13), and user ephemeris sub-window (Exhibit B.1-14). Service Detail sub-window will allow the operator to setup user account parameters; IBU Configuration sub-window will setup the IBU configuration parameters; The DMU configuration sub-window will setup the DMU configuration parameters; The DSER User Configuration sub-window will setup the DSER Configuration parameters; the ephemeris sub-window will setup the user ephemeris in ECI format.

Exhibit B.1-10: DASCON Service Setup – Service Detail

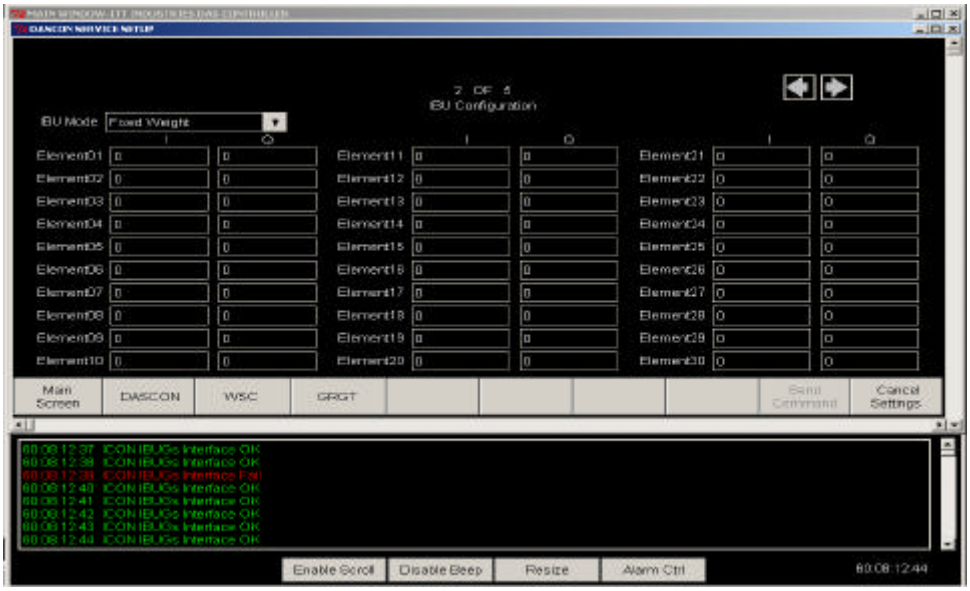

Exhibit B.1-11: DASCON Service Setup – IBU Configuration

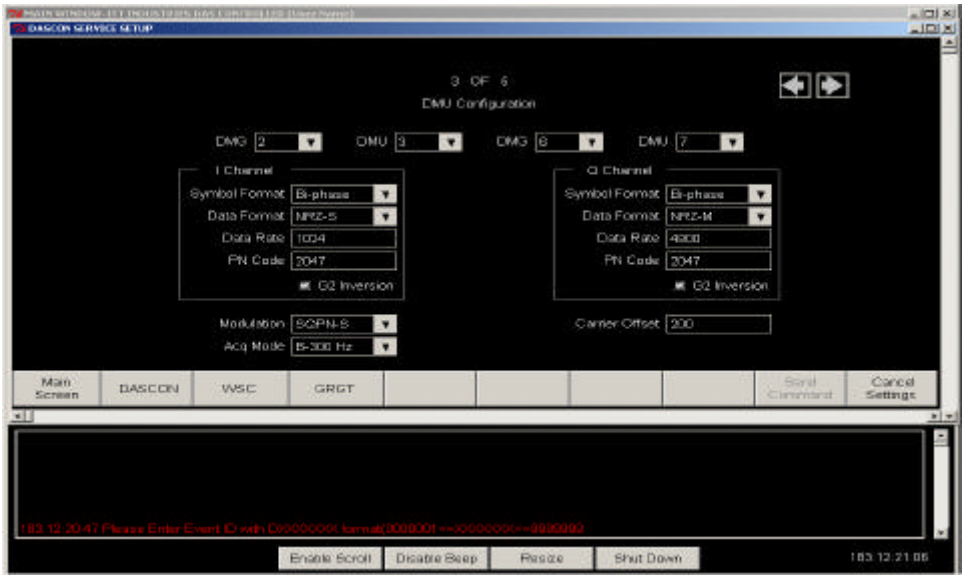

Exhibit B.1-12: DASCON Service Setup – DMU Configuration

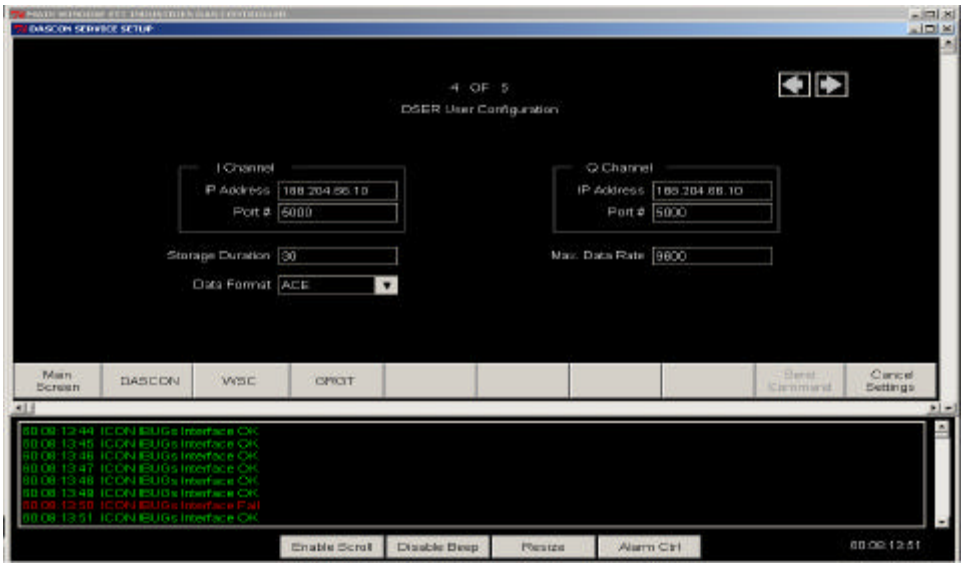

Exhibit B.1-13: DASCON Service Setup – DSER User Configuration

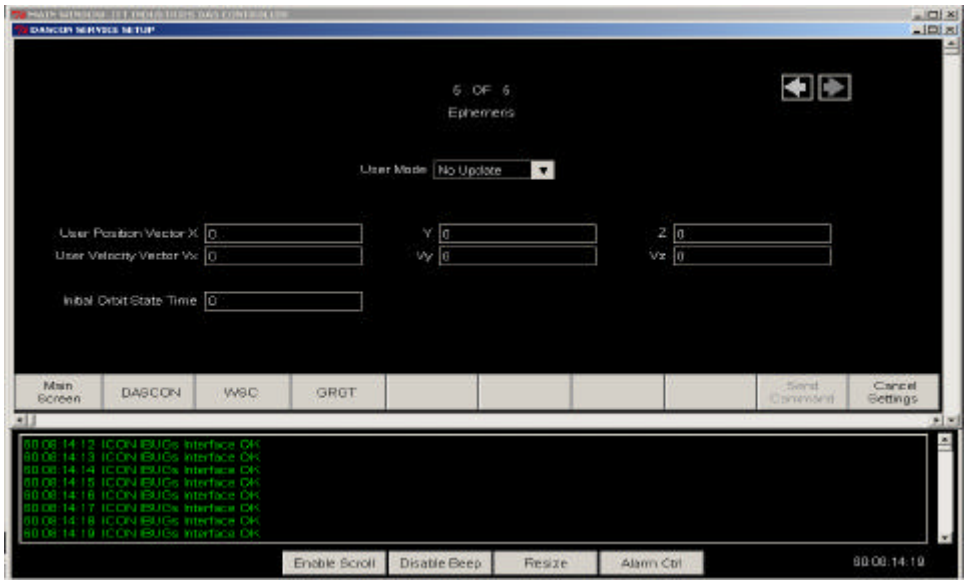

Exhibit B.1-14: DASCON Service Setup – User Ephemeris

DAS Parameter Setup – This screen displays the DASCON system parameters. It includes NISN bandwidth, GDIS bandwidth, and disc full percentage. The DAS Parameter Setup Window is shown in Exhibit B.1-15

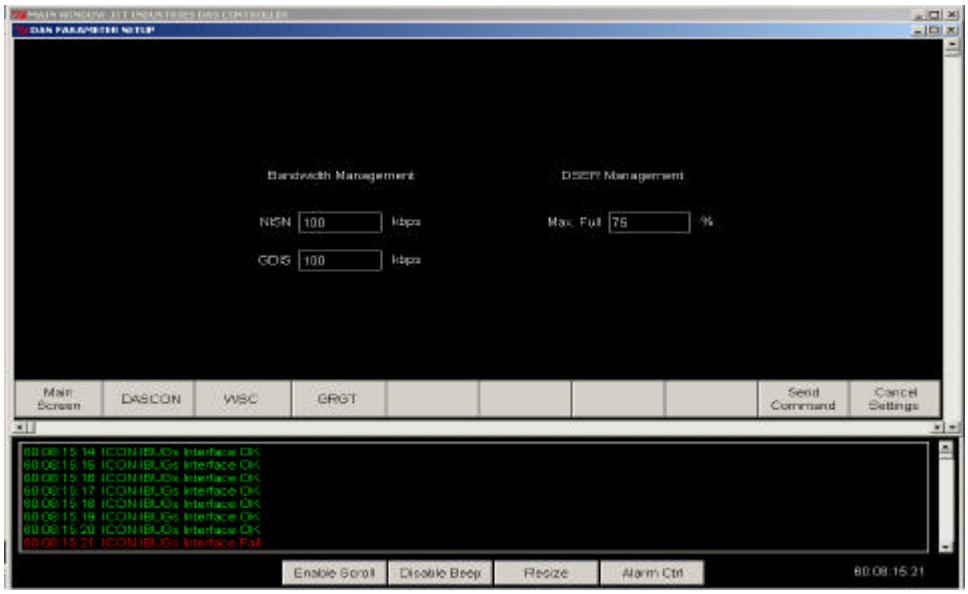

Exhibit B.1-15: DAS Parameter Setup

WSC EMC/ECON Window – This screen displays the operational status of the ECON and the 4 EMCs at WSC as well as the EMC TDRS assignment and connectivity to the ADPE interfaces to receive TDRS state vectors. This window is unique to the WSC location and not a dual purpose window such as the IF Switch Window. The WSC EMC/ECON Window will be updated once per second. It can invoke other windows such as Main Screen, DASCON Main Window, WSC Main Window, the GRGT Main Window,

the Network Configuration Window and the Customer Administration Window. The WSC EMC/ECON Window is shown in Exhibit B.1-16

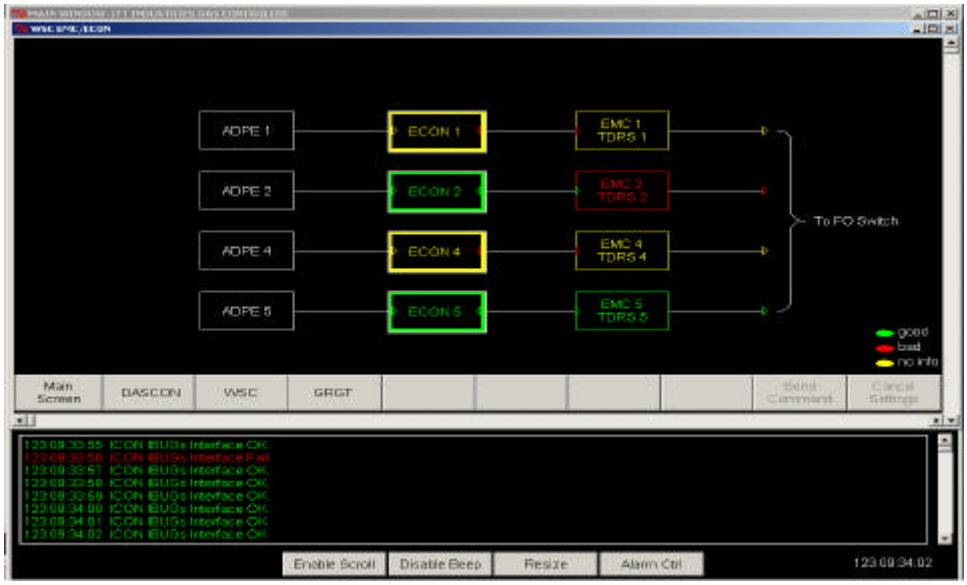

Exhibit B.1-16: WSC EMC/ECON Window

WSC Main Window – This screen displays all the components status in the WSC. It includes EMC/ECON status, FO Switch status, IBUG/ICON status, IF switch status, DMG/DCON status, DSER status, as well as connection statuses. The WSC Main Window is shown in Exhibit B.1-17

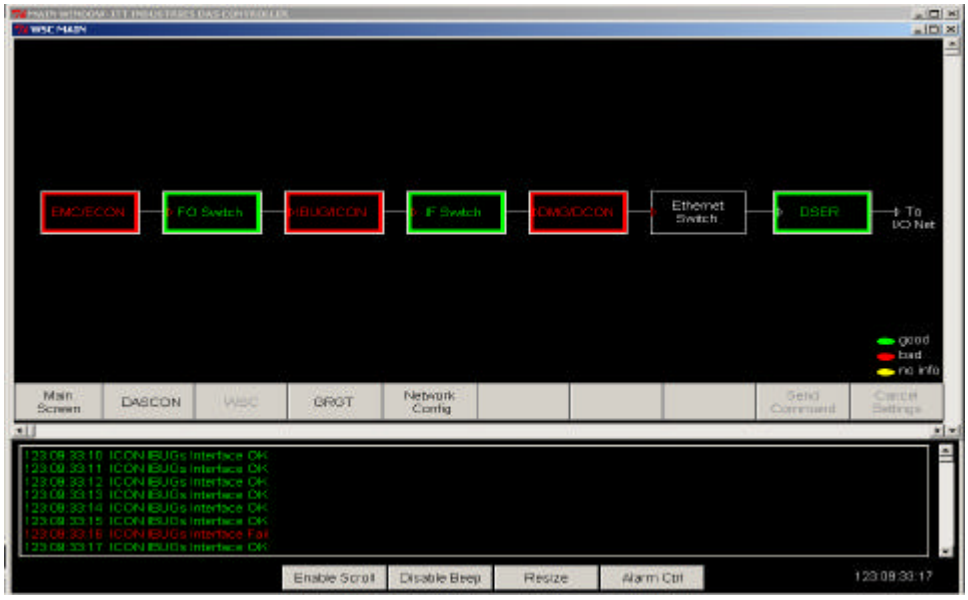

Exhibit B.1-17: WSC Main Window

WSC ECON Window – This screen displays the EMC status received from ECON. It includes TDRS ID, Calibration status, PN code, and PN status. It also allows the operator open other ECON windows by selecting ECON from the drop down box. The WSC ECON Window is shown in Exhibit B.1-18

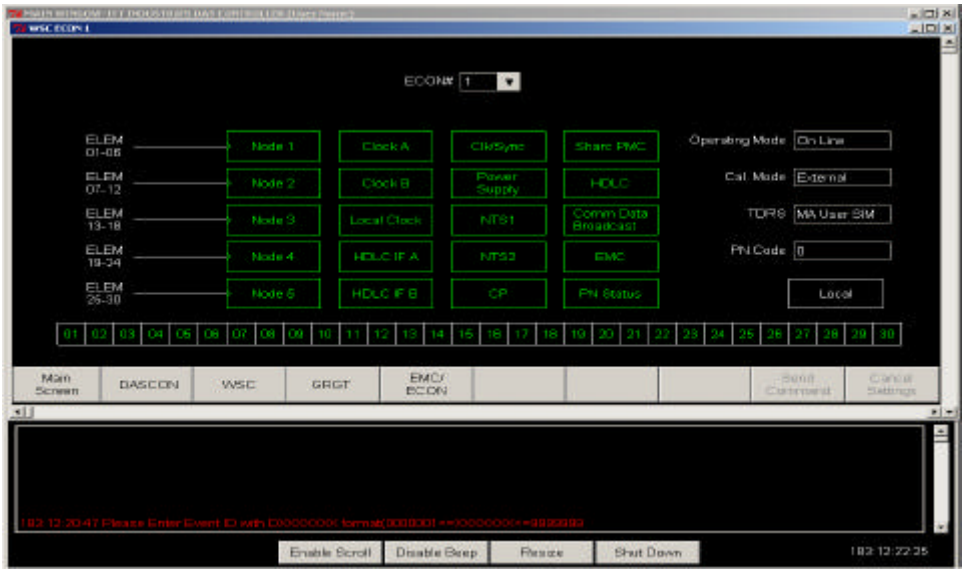

Exhibit B.1-18: WSC ECON Window

GRGT EMC ECON Window – This screen displays the ECON Status. It displays the EMC and ECON connection status and EMC and ADPE connection status. It can invoke other windows such as DASCON Window, DASCON WSC Window, DASCON GRGT Window, and return to DASCON Main Window. The GRGT EMC ECON Window is shown in Exhibit B.1-19.

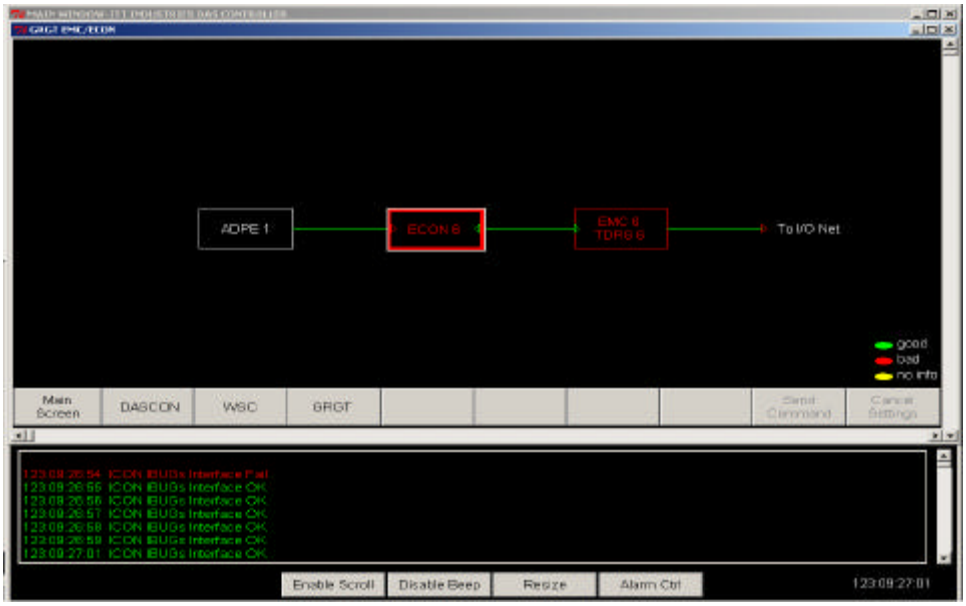

Exhibit B.1-19: GRGT EMC ECON Window

WSC FO Switch Window – This screen displays ICON status, FO Switch status, ICON and FO switch connection status. It also displays the EMC input signal status and FO switch output signal status. The WSC FO Switch Window is shown in Exhibit B.1-20.

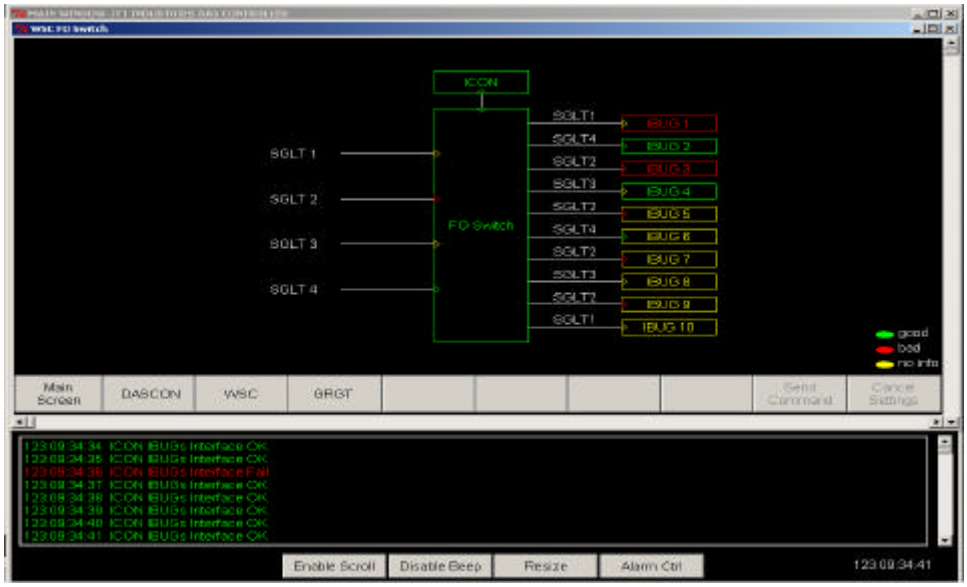

Exhibit B.1-20: WSC FO Switch Window

WSC ICON/IBUG Window – This screen displays the operational status of the ICON and the 10 IBUGs at WSC. This window is unique to the WSC location and not a dual purpose window such as the IF Switch Window because it shows the connectivity with the EMC Switching CSCI. The WSC IBUG/ICON Window will be updated once per second. It can invoke other windows such as Main Screen, DASCON Main Window, WSC Main Window, the GRGT Main Window, the Network Configuration Window and the Customer Administration Window. The WSC ICON/IBUG Window is shown in Exhibit B.1-21.

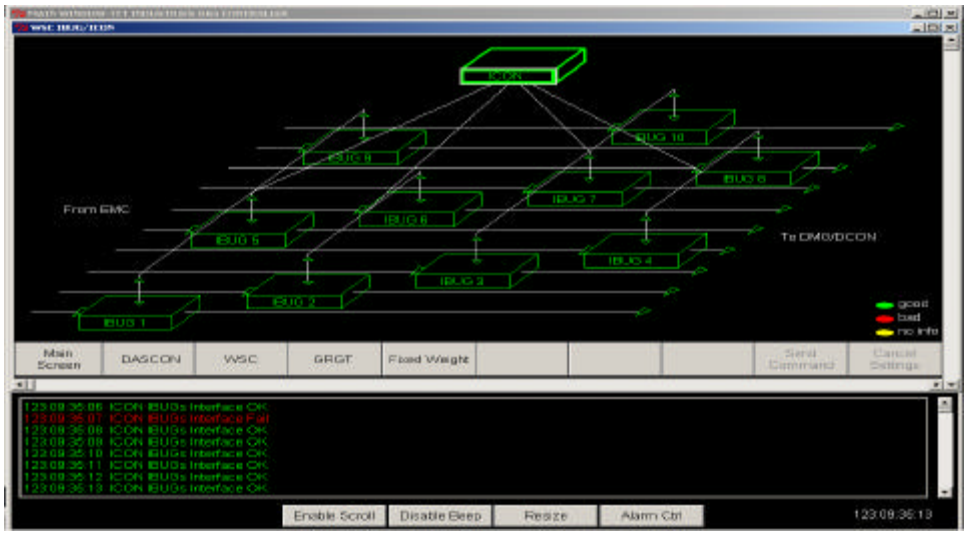

Exhibit B.1-21: WSC ICON/IBUG Window

DMG/DCON Window – This screen serves as a dual purpose window that will show the operational status of the DCON and the 8 DMGs at either WSC or Guam. The DMG/DCON Window will be updated once per second. It can invoke other windows such as the Main Screen, the DASCON Main Window, the WSC Main Window, the GRGT Main Window, the Network Configuration Window and the Customer Administration Window. The DMG/DCON Window is shown in Exhibit B.1-22.

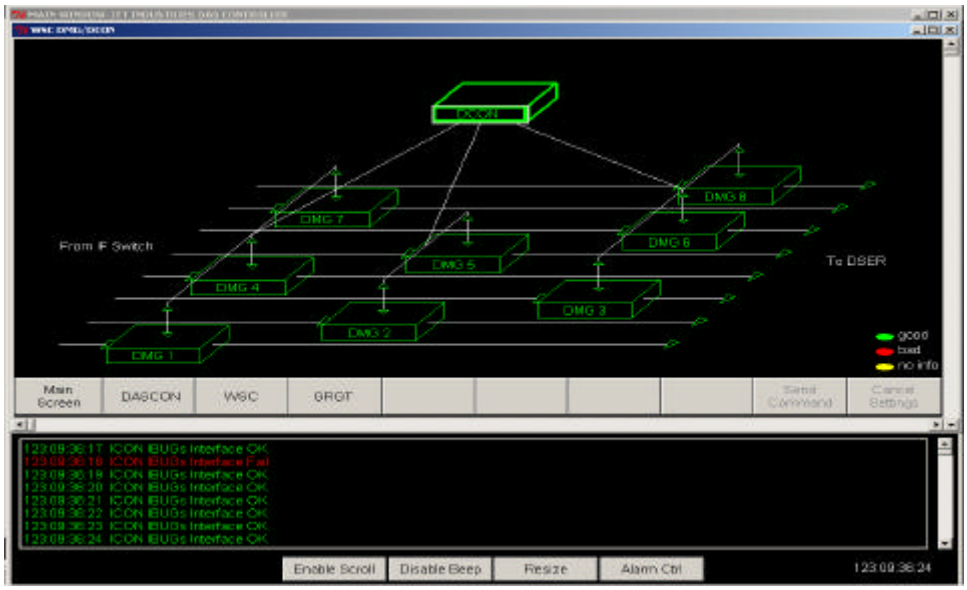

Exhibit B.1-22: DMG/DCON Window

Fixed Weight Window – This screen displays the 30 fixed weight for each IBU. The Fixed Weight Window is shown in Exhibit B.1-23.

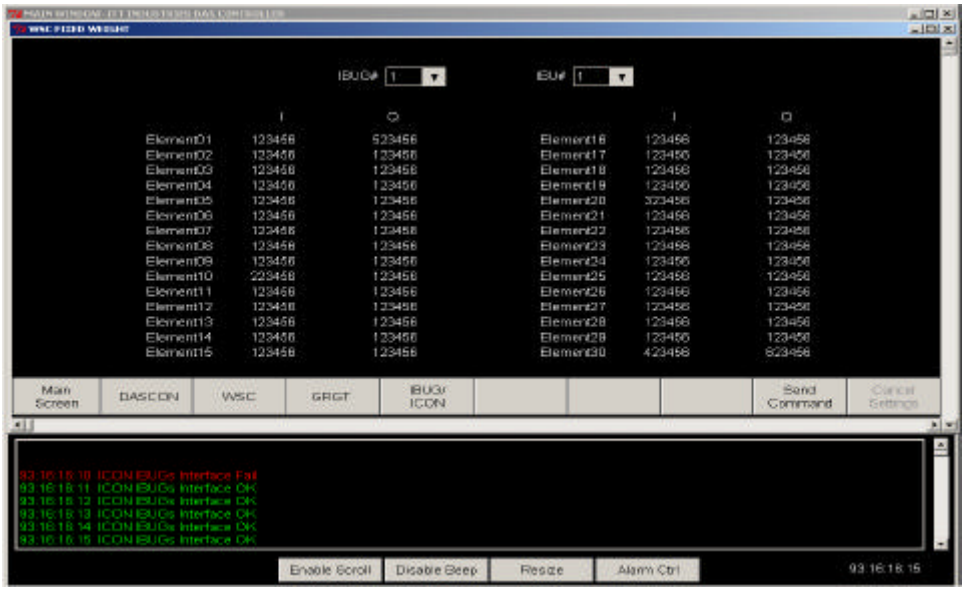

Exhibit B.1-23: Fixed Weight Window

DCON Window – This screen displays the status of the DCON at WSC or GRGT. It can invoke other windows such as DASCON Window, DASCON WSC Window, DASCON GRGT Window, and return to DASCON Main Window. The DCON window is shown in Exhibit B.1-24.

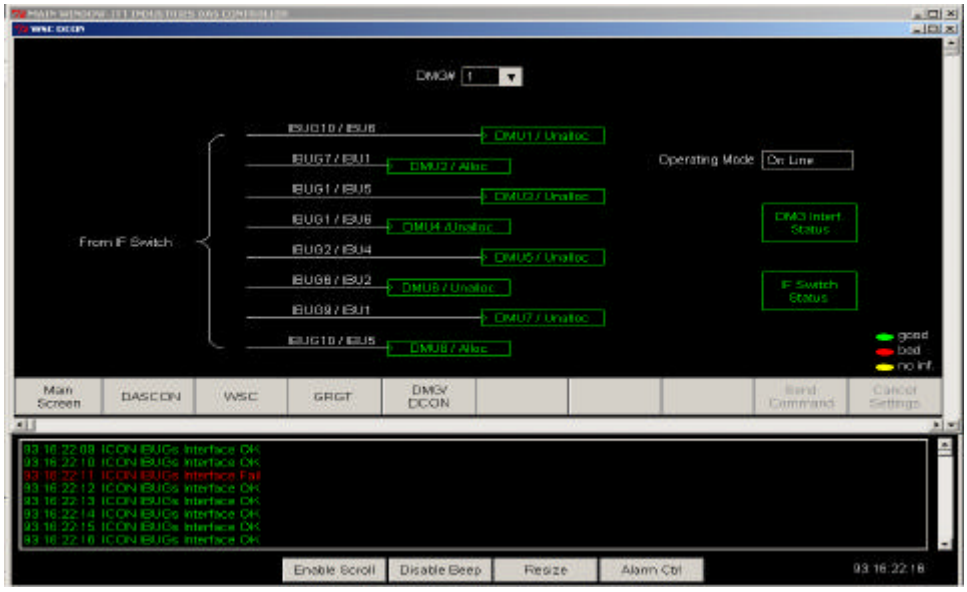

Exhibit B.1-24: DCON Window

IF Switch Window – This screen displays the IF switch status, DCON status, DCON and IF switch interface status, its input and output signal status and IBU/DMU mapping. The IF Switch Window is shown in Exhibit B.1-25.

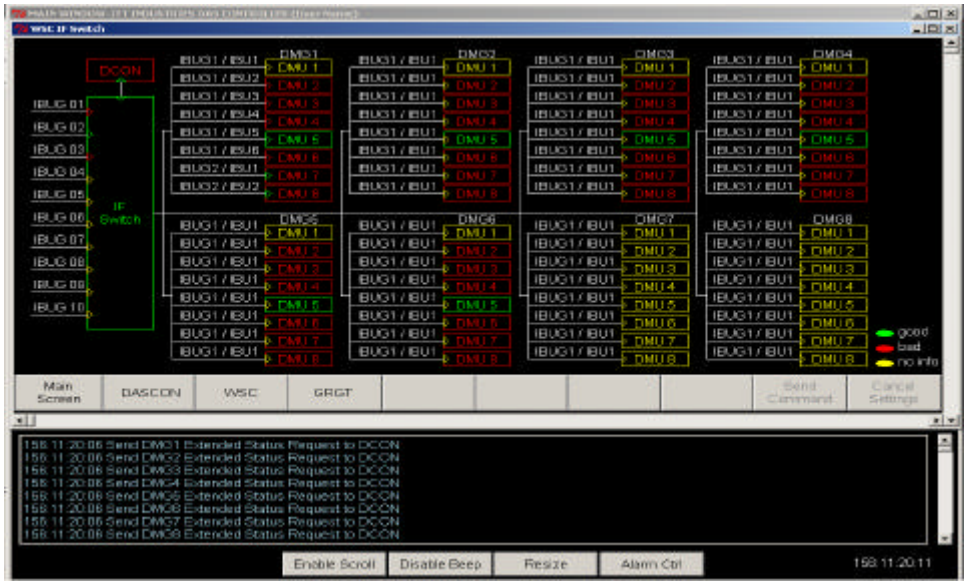

Exhibit B.1-25: IF Switch Window

Data Server PTP Window – This serves a dual purpose window that will show the operational status of the Ethernet Data Switch between the DMGs and the DSER at either WSC or Guam. The Ethernet Data

Switch Window will be updated once per second. It can invoke other windows such as the Main Screen, the DASCON Main Window, the WSC Main Window, the GRGT Main Window, and the Network Configuration Window. The Data Server PTP Window is shown in Exhibit B.1-26

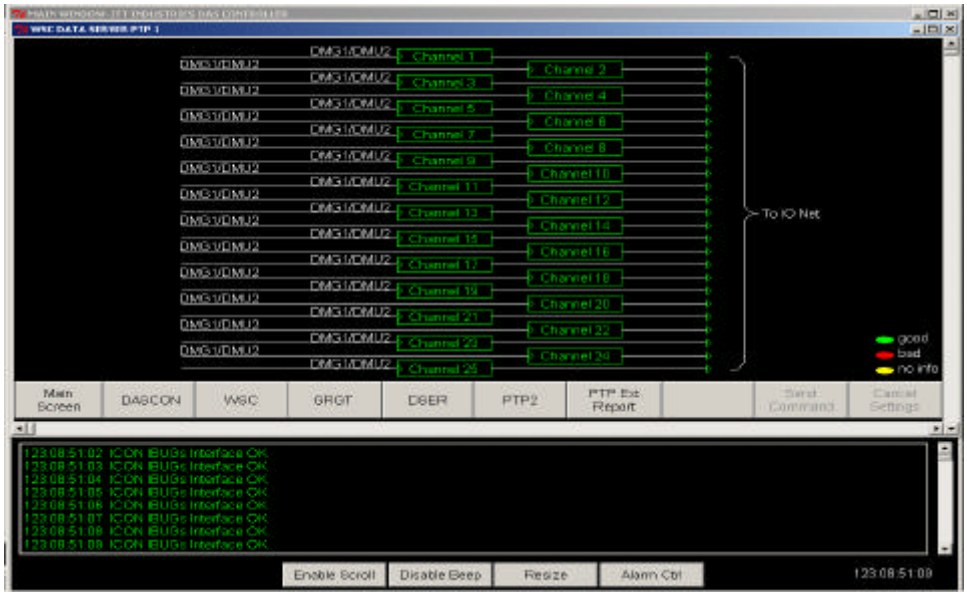

Exhibit B.1-26: Data Server PTP 1 Window

Data Server Window – This is a dual purpose window that will display the operational status of **t**he DFAS at either WSC or Guam. The Data Server Window will be updated once per second. It can invoke other windows such as Data Server DMG Interface Window, Data Server Filesystem Interface Window and the Data Server Customer Data Interface Window. The Data Server Window is shown in Exhibit B.1-27.

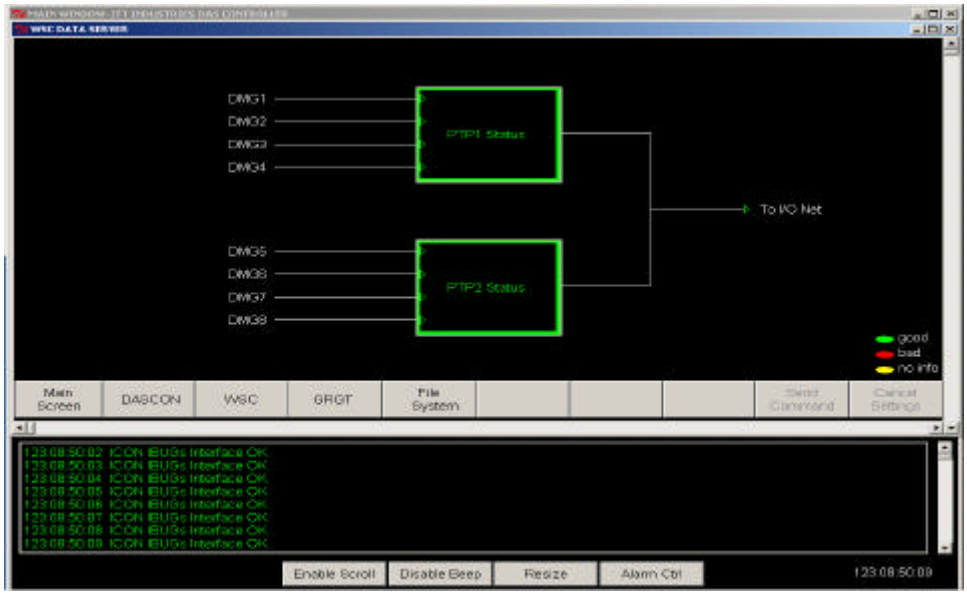

Exhibit B.1-27: Data Server Window

Data Server File System Window – This screen displays the disk storage capacity of the Data Server in terms of number of bytes and percentage of disk full. It also will provide a dialog box that allows the DAS operator to retrieve or purge individual file or a set of directory files that are labeled by date. The Data Server File System Window will be updated once per second. It can also invoke other windows such as Main Screen, the DASCON Main Window, the WSC Main Window, the GRGT Main Window, the Network Configuration Window and the Data Server Window. The Data Server File System Window is shown in Exhibit B.1-28.

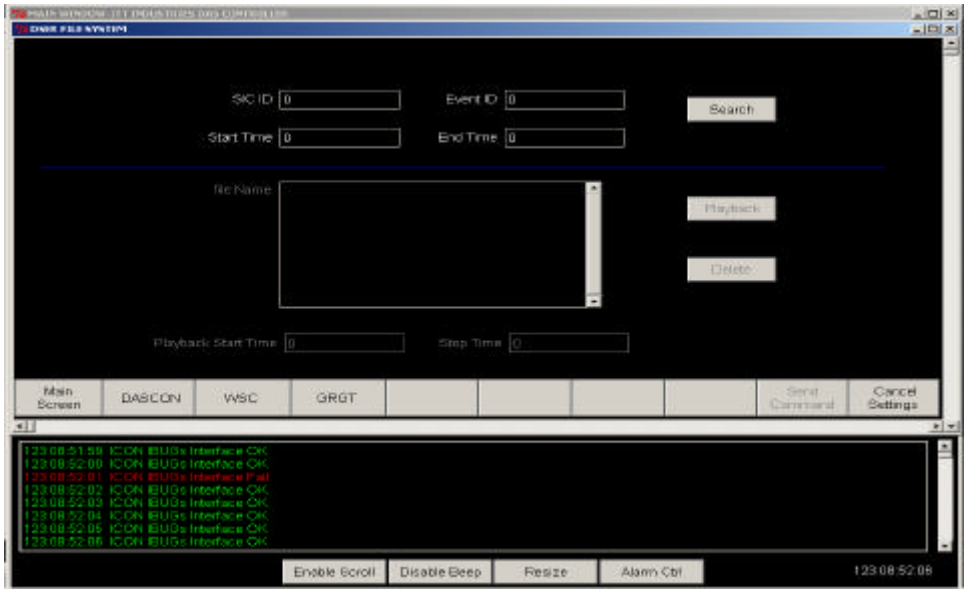

Exhibit B.1-28: Data Server File System Window

GRGT Main Window – This screen displays all component status in the GRGT. It includes EMC/ECON status, IBUG/ICON status, IF switch status, DMG/DCON status, DSER status, as well as connections status. If no connection, the status button color displays in yellow and the connection arrow display red; If any status is bad, the status button color display red; Otherwise, the status button color display green. The GRGT Main Window is shown in Exhibit B.1-29

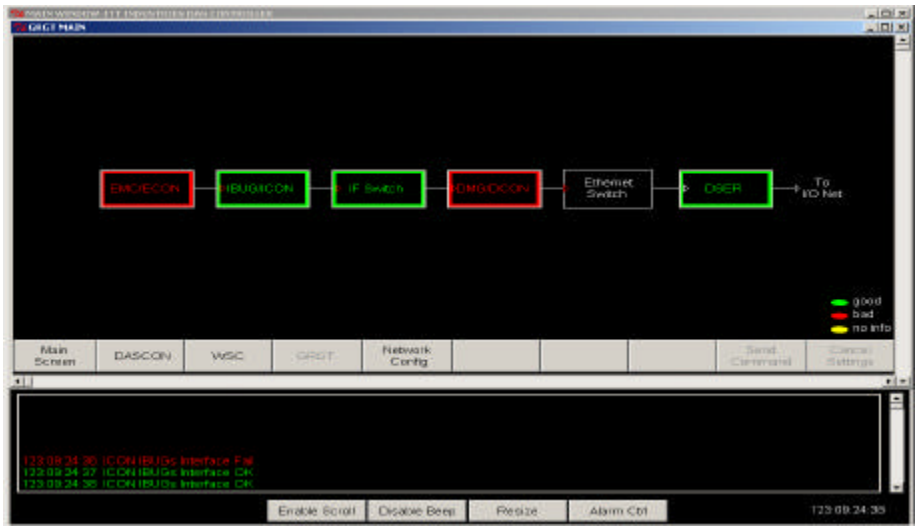

Exhibit B.1-29: GRGT Main Window

Network Configuration Window – This screen allows the operator to change the ECON, ICON, DCON, and PTP IP addresses at both WSC and GRGT. The Network Configuration Window is shown in Exhibit B.1-30.

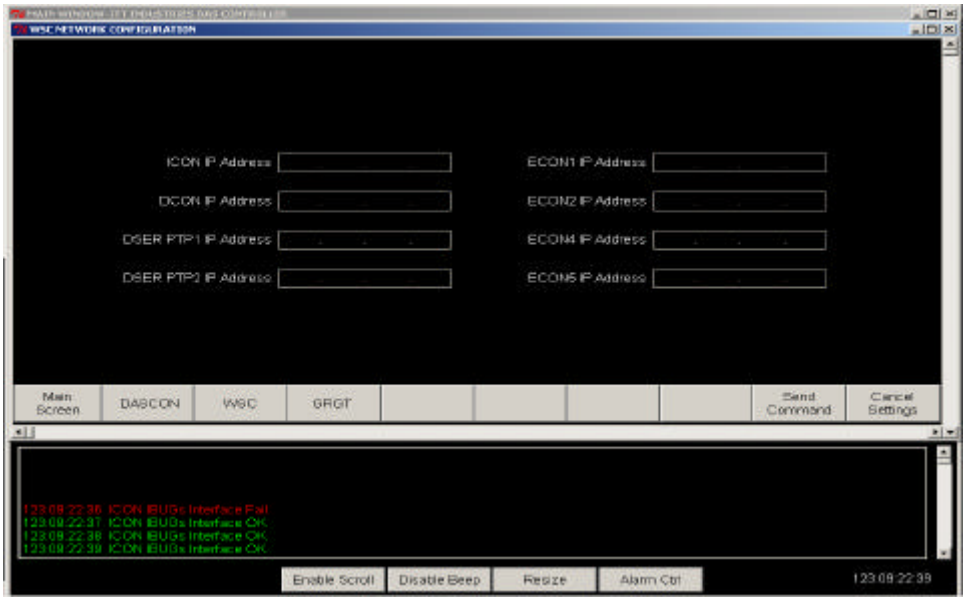

Exhibit B.1-30: Network Configuration Window

DASCON Delog window – This screen allows the operator to search for a key word in the database. The operator must specify a start and stop time and the name of an output file. Once the command is sent the results are written to the output file specified by the operator. It can invoke other windows such as the Main Screen, the DASCON Main Window, the WSC Main Window and the GRGT Main Window and the Network Configuration window. The DASCON Delog Window is shown in Exhibit B.1-31.

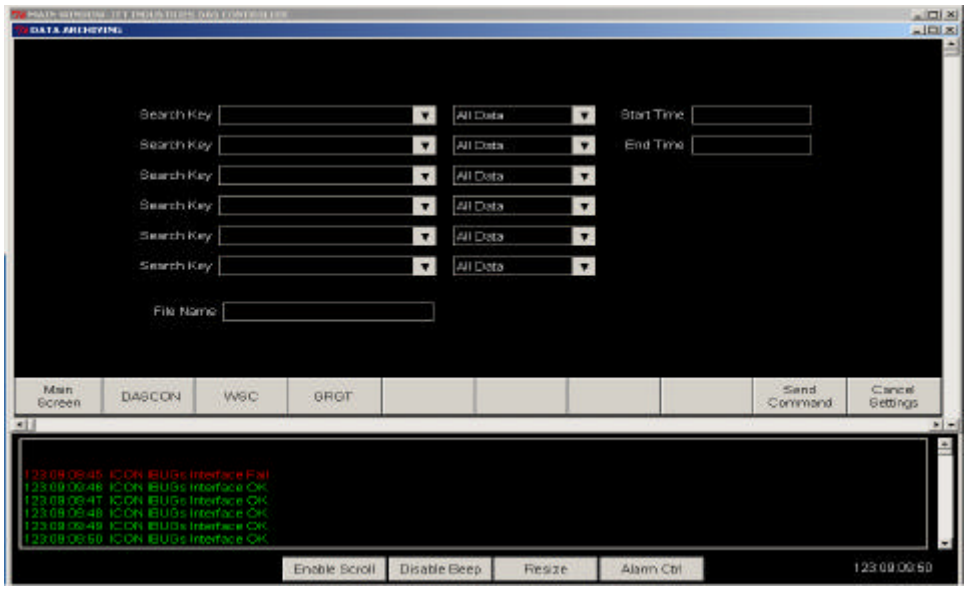

Exhibit B.1-31: DASCON Delog Window

B.2 DATA FORMATTER/ARCHIVE SERVER (DFAS)

B.2.1 DFAS Executables

The DFAS Computer Software Configuration Item (CSCI) resides on a 19'' rack-mounted Pentium III based PC. DFAS requires Red Hat Linux v6.2 as the operating system and the Python database, Pickle, to maintain and update DFAS configuration files. DFAS contains 512 MB of Random Access Memory (RAM), a 72 GB RAID sub-system, a 1.44 MB floppy drive, a CD-RW drive, six 10/100 Ethernet adapters, standard keyboard, mouse and video interfaces. The Customer will be able to receive data through a Client/Server application over the Internet. The DFAS will also be able to route data using a Space Link Extension (SLE) CCSDS protocol Customer.

B.2.2 DFAS Configuration Files

The DFAS configuration file consists of TBD. An example of the DFAS configuration file is shown in TBD.

B.2.3 DFAS MMI Screens

The following GUIs are employed by DFAS for man machine interface. These screens are used by the operator to perform functions related to the DFAS subsystem.

TBD

B.3 TGBFS IBUG CONTROLLER (ICON)

B.3.1 ICON Executables

The ICON Computer Software Configuration Item (CSCI) resides on a 19'' rack-mounted Pentium II based PC. ICON requires Windows NT 4.0, Terminal Server Edition, as the operating system and Microsoft Access as a database engine to control the update and archiving of status information received

from the IBUGs. ICON contains 512 MB of Random Access Memory (RAM), a 9.1 GB hard drive, a 1.44 MB floppy drive, a CD-RW drive, a CD-ROM drive a, two 10/100 Ethernet adapters, standard keyboard, mouse and video interfaces. The Customer will be able to receive data through a Client/Server application over the Internet. ICON will provide a GUI to allow operators to enter commands for the IBUG CSCI and display all the status information.

B.3.2 ICON Configuration Files

The ICON configuration file consists of TBD. An example of the ICON configuration file is shown in TBD.

B.3.3 ICON MMI Screens

The following are the MMI Screens employed by ICON:

ICON Main Screen – This screen will initialize the global variables associated with the GUI windows, start the thread for the Manage Status CSC, provide access to the database files, and open the main GUI window. Upon program termination, it will shut down in a controlled manner. The ICON Main Window is shown in Exhibit B.3-1.

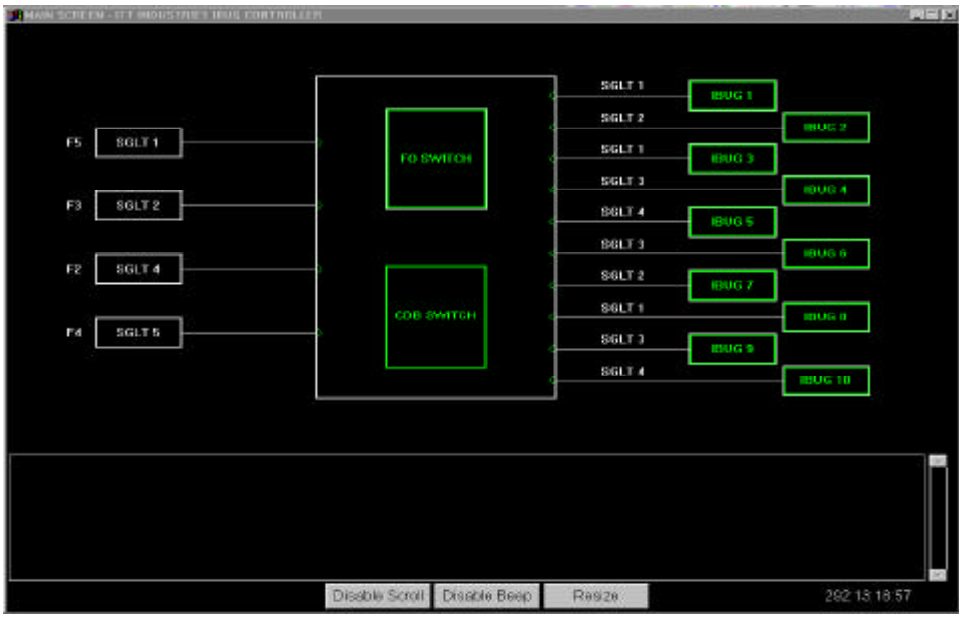

Exhibit B.3-1: ICON Main Screen

ICON Master Status Window – This screen displays the IBUG chassis and board level status from the global variables once per second. The screen also allows the operator to select FCRX and send the selection to the database. The screen also provides buttons to invoke other windows such as Master Command window, IBUG Report window, Network Configuration window, and IBU Control window. The ICON Master Status Window is shown in Exhibit B.3-2.

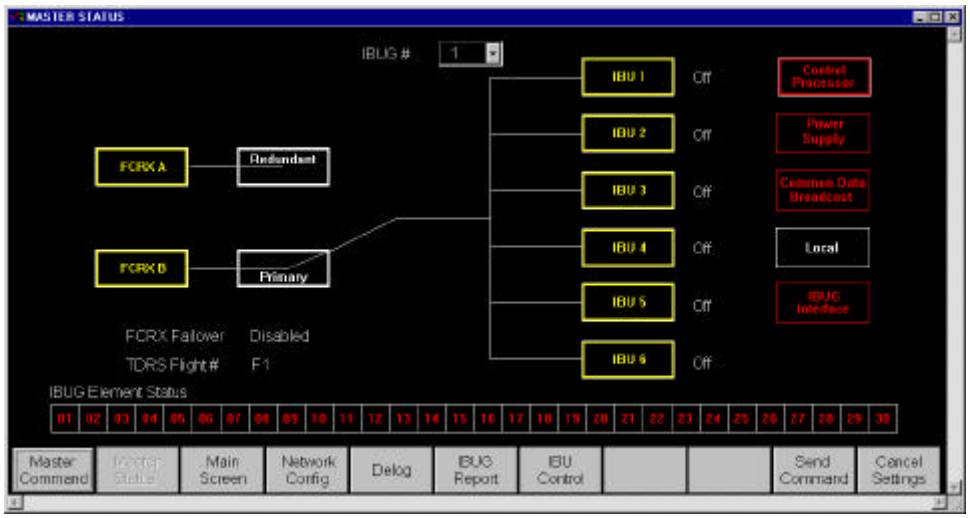

Exhibit B.3-2: ICON Master Status Window

ICON Master Command Window – This screen allows the operator to input configuration items, such as IBUG mode and FCRX failover. It will wait for the user selection and then it will place the command into the database. The ICON Master Command Window is shown in Exhibit B.3-3.

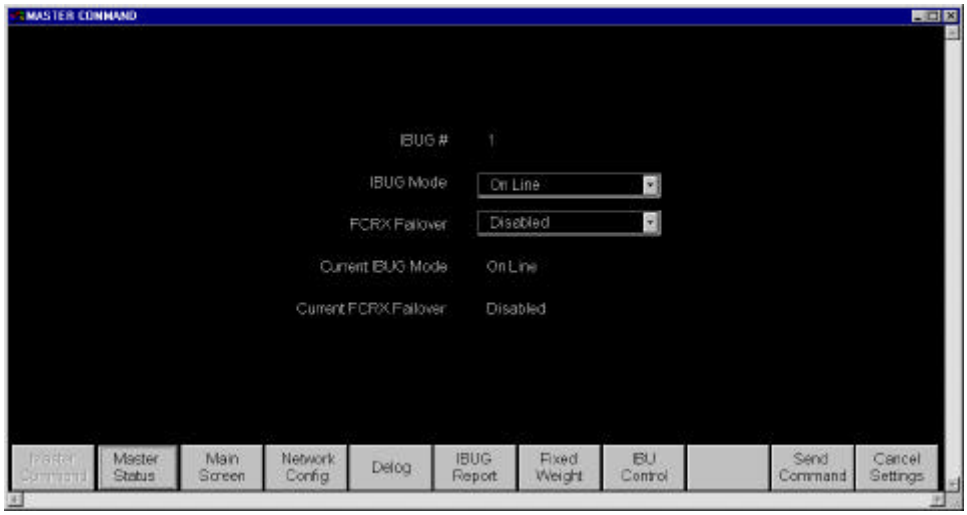

Exhibit B.3-3: ICON Master Command Window

ICON FCRX Card Window – This screen displays the status of the FCRX Card. The Update Status CSU will update the window's status from the global variables once per second. The ICON FCRX Card Window is shown in Exhibit B.3-4.

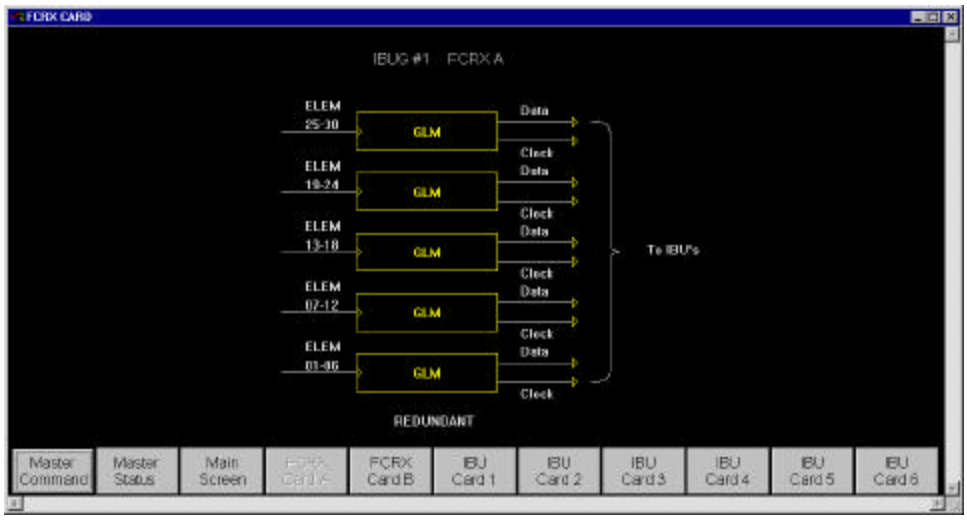

Exhibit B.3-4: ICON FCRX Card Window

IBU Card Window – This screen displays the status of the IBU Card. The Update Status CSU will update the window's status from the global variables once per second. The IBU Card Window is shown in Exhibit B.3-5.

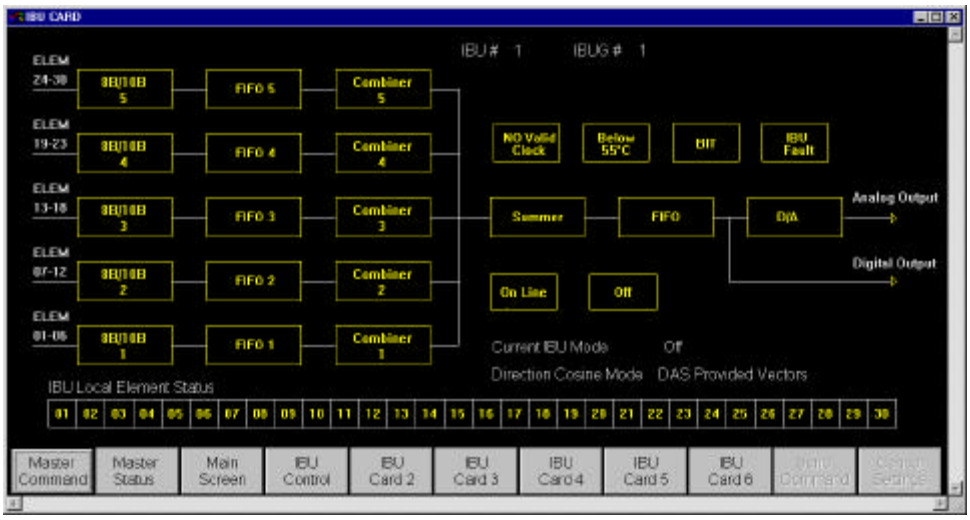

Exhibit B.3-5: IBU Card Window

ICON Network Configuration Window – This screen allows the operator to enter the IP addresses of the ICP and the FO Switch. These entries are stored into the database, which will be used by Manage IBUG Interface and Manage FO Switch Interface to make connections with ICP and FO Switch respectively. The ICON Network Configuration Window is shown in Exhibit B.3-6.

Exhibit B.3-6: ICON Network Configuration Window

ICON Database Archiving Window – This screen allows the operator to archive IBUGs and/or FO Switch status information. The screen accepts a start time, an end time, a result filename, a set of search keys and search parameters to access archived data. The archived data will be stored in the specified file, which can be printed if necessary. The ICON Database Archiving Window is shown in Exhibit B.3-7.

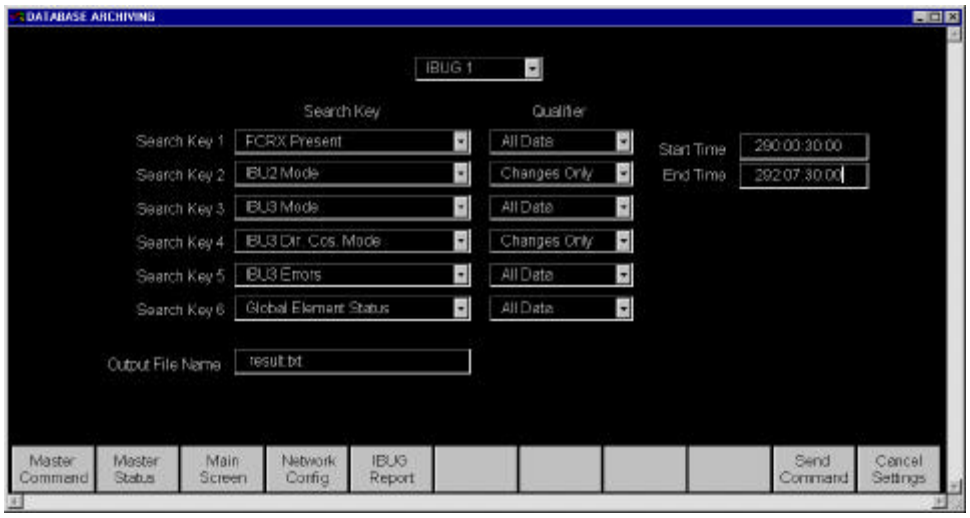

Exhibit B.3-7: ICON Database Archiving Window

IBUG Report Window – This screen allows the operator to select report requests. It accepts a**n** operator selection, the selection is sent to the ICP CSCI. Following the ICP response the screen displays the report results on the Report Window. The IBUG Report Window is shown in Exhibit B.3-8.

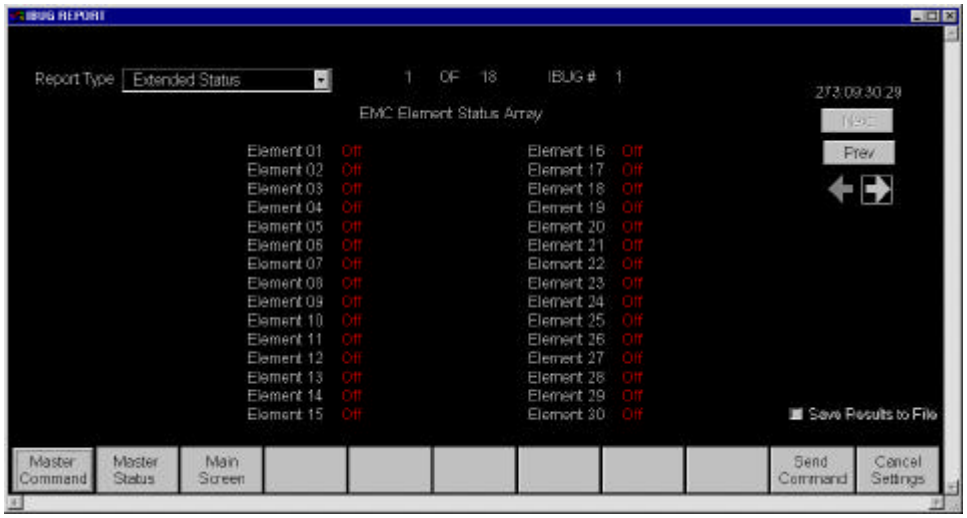

Exhibit B.3-8: IBUG Report Window

ICON Fixed Weight Window – This screen allows the operator to enter thirty fixed weight elements or a file to read the fixed weight elements from. The screen provides a "Send Command" button the operator can select to send the Fixed Weight elements to the ICP. The ICON Fixed Weight Window is shown in Exhibit B.3-9.

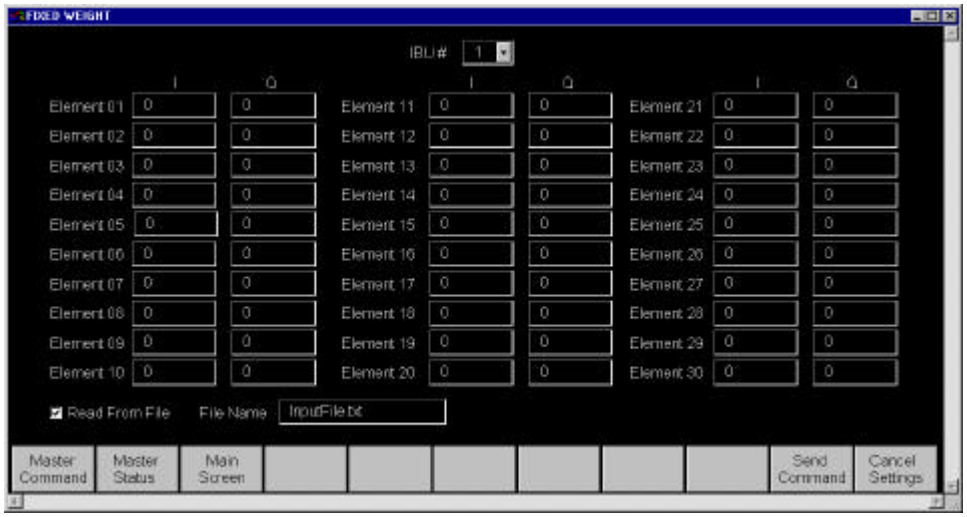

Exhibit B.3-9: ICON Fixed Weight Window

IBU Control Window – This screen allows the operator to enter user and TDRS state vector data to generate the user direction cosines and monitor the state vector and direction cosines. The IBU Control Window is shown in Exhibit B.3-10.

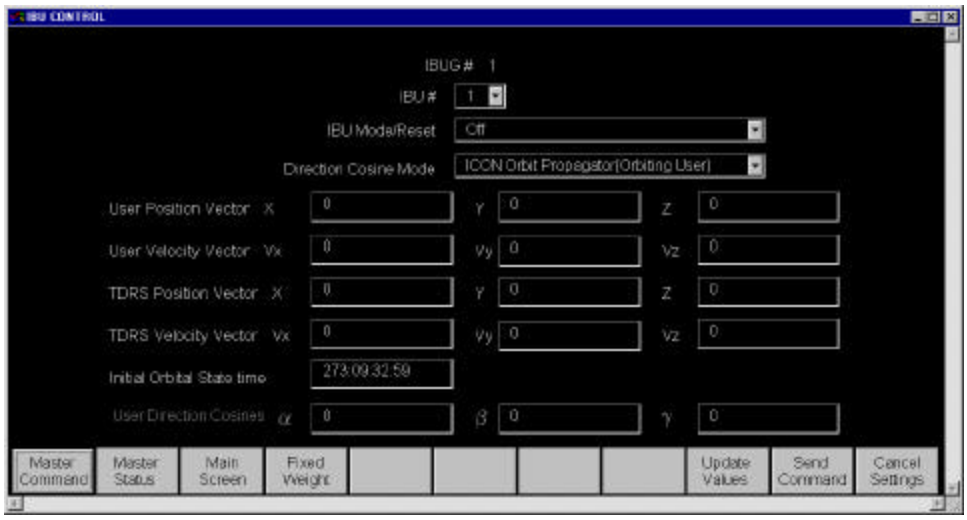

Exhibit B.3-10: IBU Control Window

ICON Control Processor Window – This screen displays the status of the ICP firmware and VxWorks operating system. It will update the window's status using the global variables once per second. The ICON Control Processor Window is shown in Exhibit B.3-11.

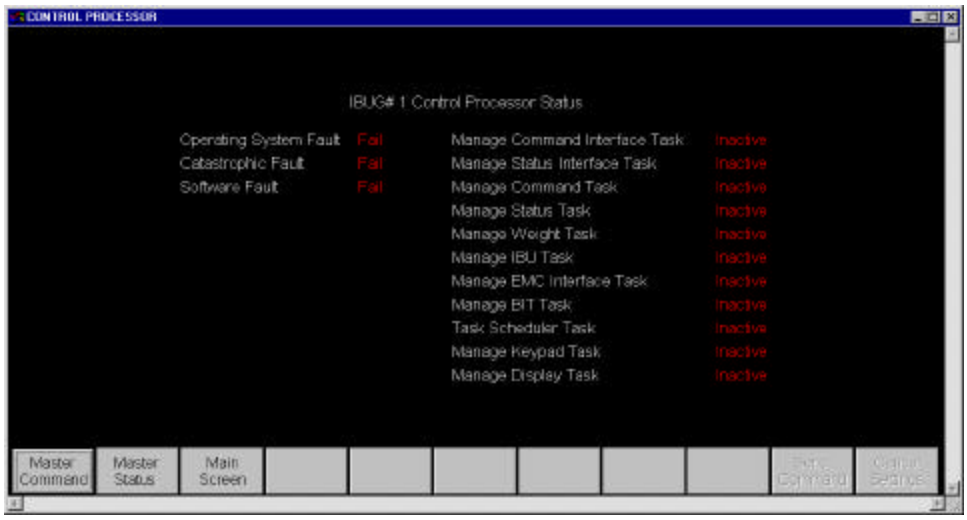

Exhibit B.3-11: ICON Control Processor Window

ICON Fiber Optic Switch Window – This screen displays the Fiber Optic and CDB Switch status. This Window notes the temperature, ICON Interface, NTS1 and NTS2 status. The ICON Fiber Optic Switch Window is shown in Exhibit B.3-12.

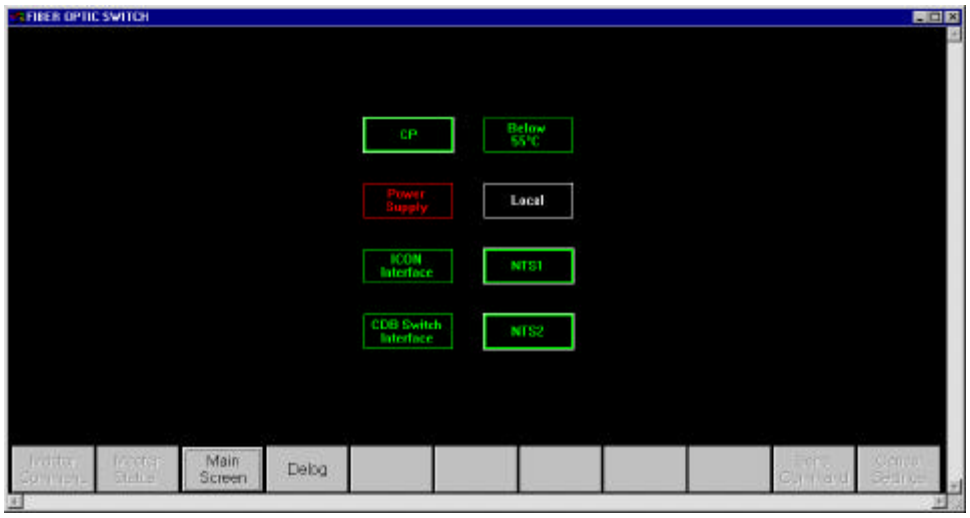

Exhibit B.3-12: ICON Fiber Optic Switch Window

ICON Fiber Optic Switch Control Processor Window – This screen displays the status of the FO Switch firmware and VxWorks operating system. The Update Status CSU will update the window's status from the shared RAM file once per second. The ICON Fiber Optic Switch Control Processor Window is shown in Exhibit B.3-13.

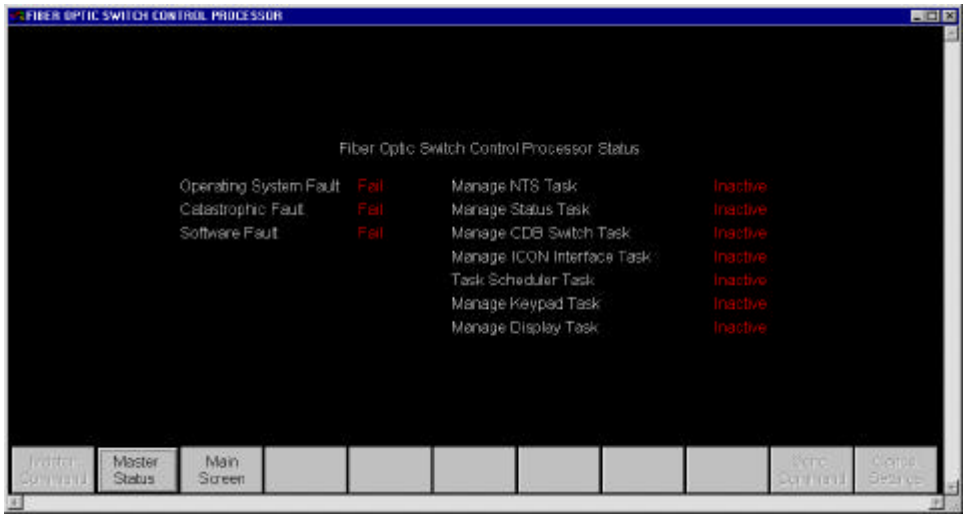

Exhibit B.3-13: ICON Fiber Optic Switch Control Processor

ICON Fiber Optic Switch NTST Window – This screen displays the status of the FO Switch NTS Card. The Update Status CSU will update the window's status from the shared RAM file once per second. The ICON Fiber Optic Switch NTST Window is shown in Exhibit B.3-14.

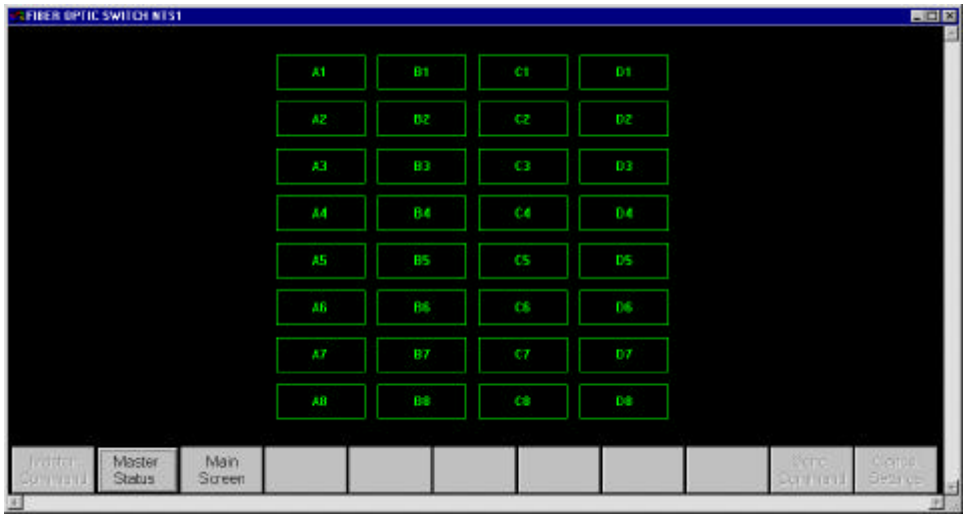

Exhibit B.3-14: ICON Fiber Optic Switch NTST Window

B.4 DEMODULATOR UNIT GROUP (DMG) CONTROLLER (DCON)

B.4.1 DCON Executables

The DCON Computer Software Configuration Item (CSCI) resides on a 19'' rack-mounted Pentium II based PC. DCON requires Windows NT 4.0, Terminal Server Edition, as the operating system and Microsoft Access as a database engine to control the update and archiving of status information received from the DMGs. DCON contains 512 MB of Random Access Memory (RAM), a 15 GB hard drive, a 1.44 MB floppy drive, a CD-RW drive, a CD-ROM drive a, two 10/100 Ethernet adapters, standard keyboard, mouse and video interfaces. The Customer will be able to receive data through a Client/Server application over the Internet. DCON will provide a GUI to allow operators to enter commands for the DMG CSCI and display all the status information.

B.4.2 DCON Configuration Files

The DCON configuration file consists of TBD. An example of the DCON configuration file is shown in TBD.

B.4.3 DCON MMI Screens

The following are the MMI screens employed by DCON:

DCON Main Window – This screen will initialize the global variables associated with the GUI windows, start the thread for the Manage Status CSC, provide access to the database files, and open the main GUI window. Upon program termination, it will shut down in a controlled manner. The DCON Main Window is shown in Exhibit B.4-1

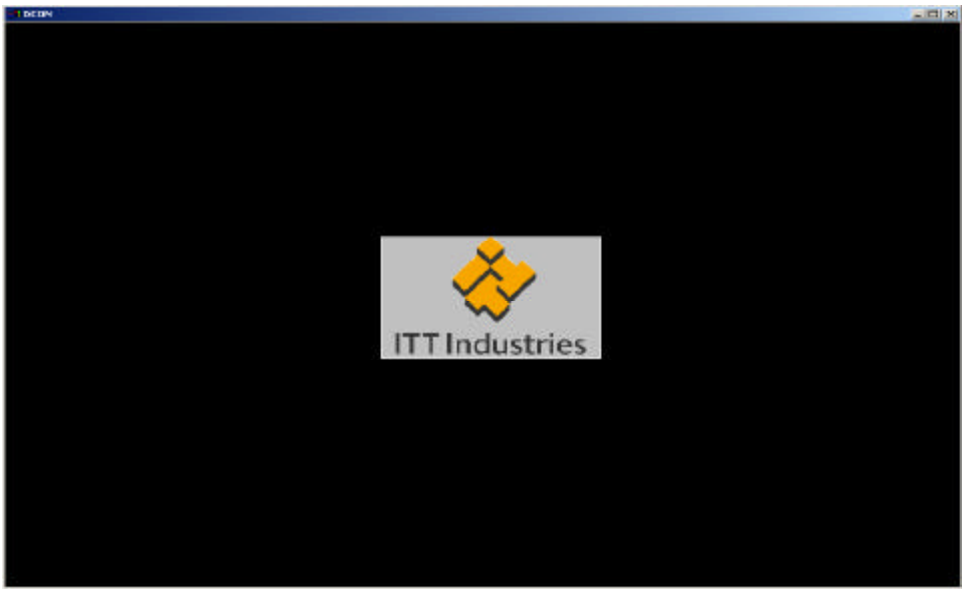

Exhibit B.4-1: DCON Main Window

DCON Main Alert Logging Window – This screen displays alert and pertinent processing messages for the DMGs and the IF Switch from the shared RAM files and will display the messages on the Main Alert Logging Window. It will also provide an optional audio cue to the operator and allow the operator to configure the size of the window as well as its ability to scroll. The window will be updated and refreshed once per second. The DCON Main Alert Logging Window is shown in Exhibit B.4-2

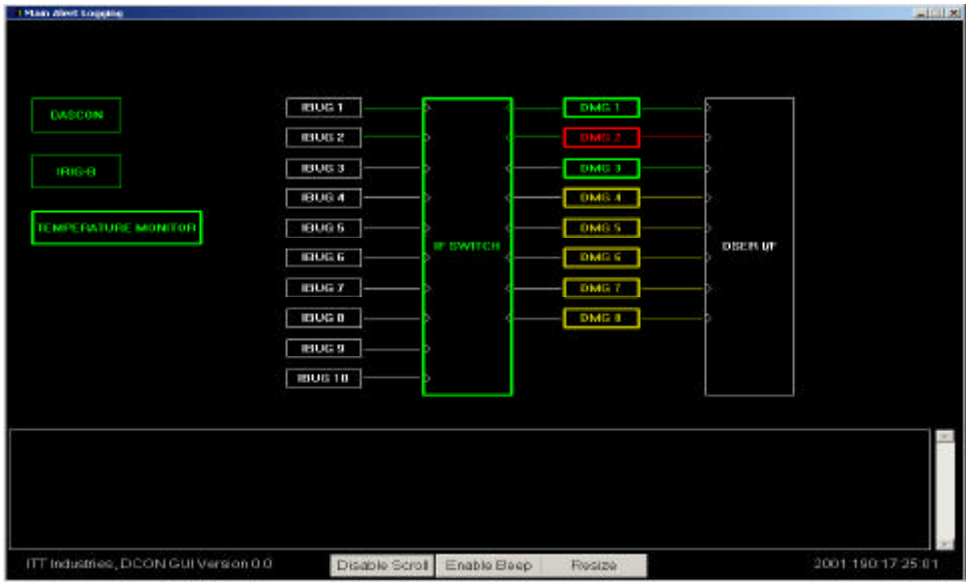

Exhibit B.4-2: DCON Main Alert Logging Window

DCON IF Switch Window – This screen displays the port status of the IF Switch. The operator has the ability to view the connection between an IBU and a DMU and change the connection by selecting an output port. The window is updated every second and the switch is polled for the current status every 15 seconds. The DCON IF Switch Window is shown in Exhibit B.4-3.

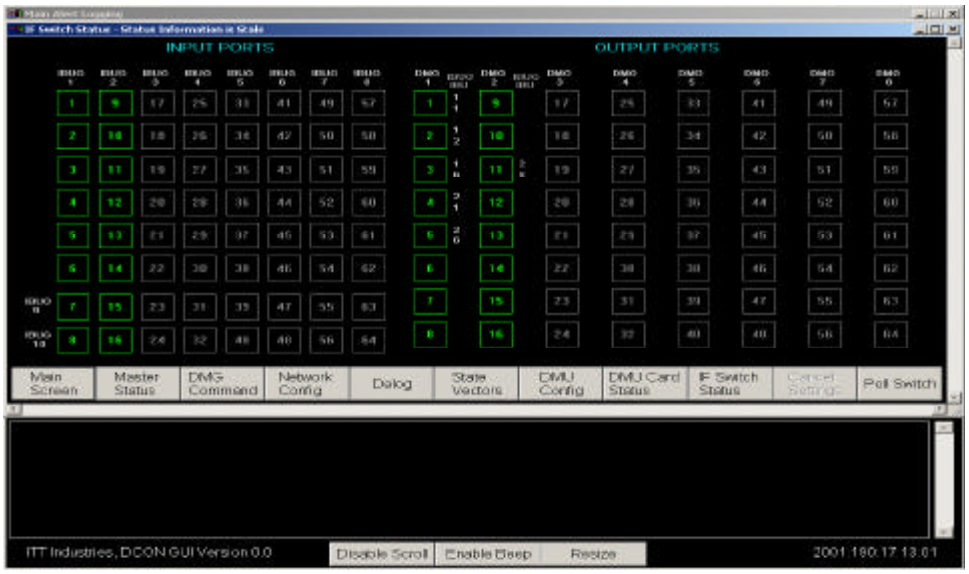

Exhibit B.4-3: DCON IF Switch Window

DCON Network Configuration Window – This screen allows the operator to enter the IP addresses of each DMG and DASCON IP address. The entries are stored in the Microsoft Access database, which will be used by Manage Backend Main CSC to make connections with DMGs and DASCON. The DCON Network Configuration Window is shown in Exhibit B.4-4.

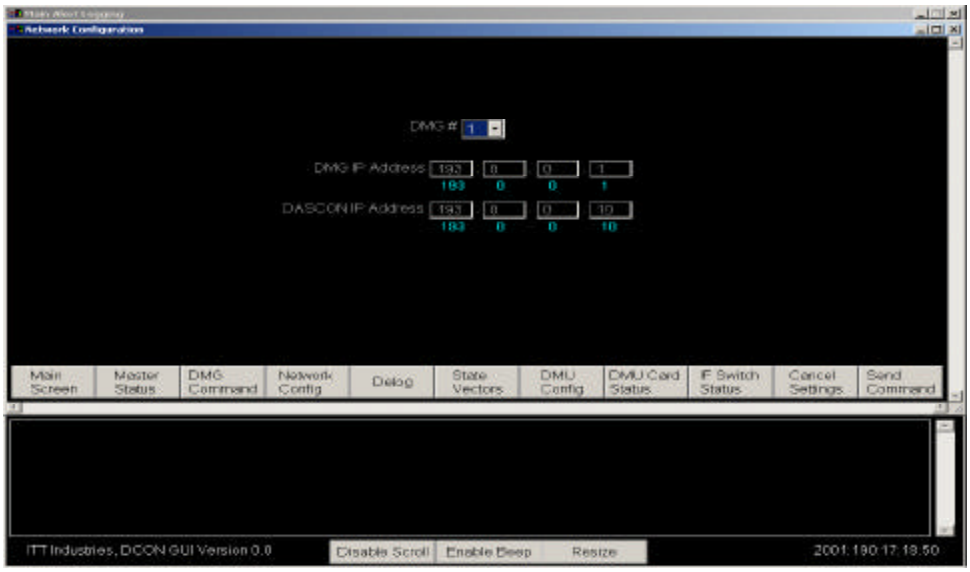

Exhibit B.4-4: DCON Network Configuration Window

DMG Control Processor Window – This screen displays the status of the DMG control process firmware and VxWorks O/S. The window is updated every second. The DMG Control Processor Window is shown in Exhibit B.4-5

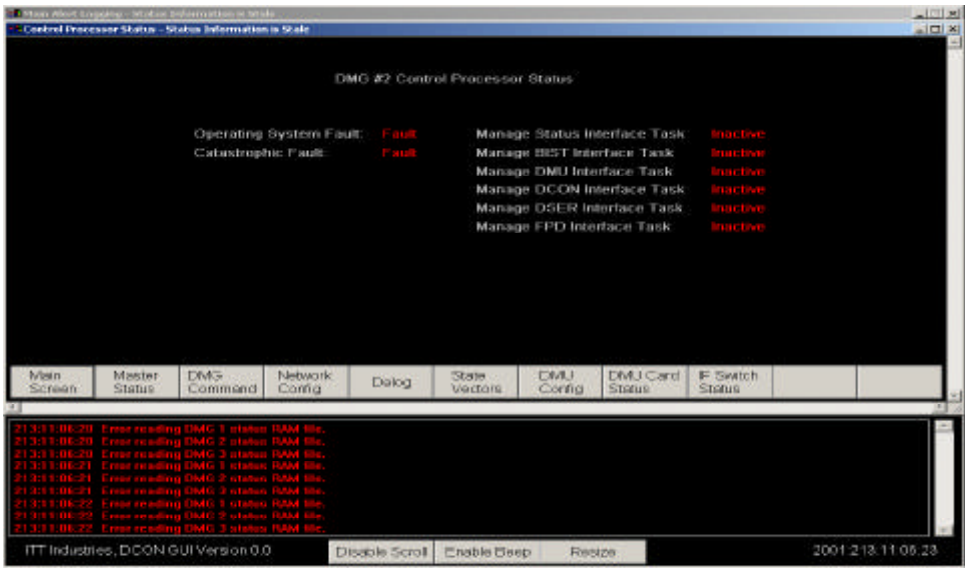

Exhibit B.4-5: DMG Control Processor Window

DMG Delog Window – This screen provides the archiving menu to the operator and will accept a set of search keys and search parameters to access archived data and copy it to a file specified by the operator. The DMG Delog Window is shown in Exhibit B.4-6

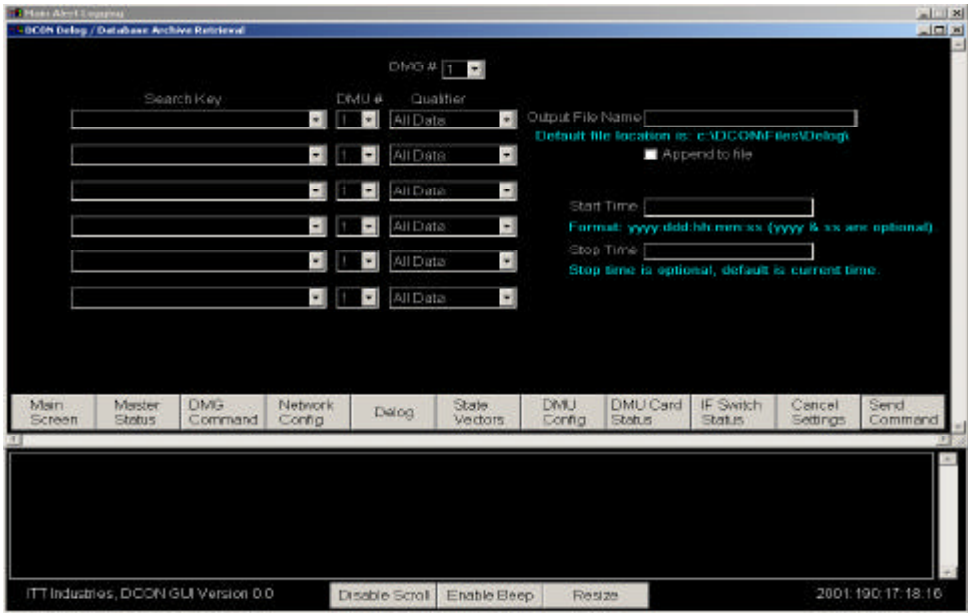

Exhibit B.4-6: DMG Delog Window

DMG Command Window – This screen allows the operator to view the current mode of each DMG and change the mode (online, offline, BIST). The DMG Command Window is shown in Exhibit B.4-7.

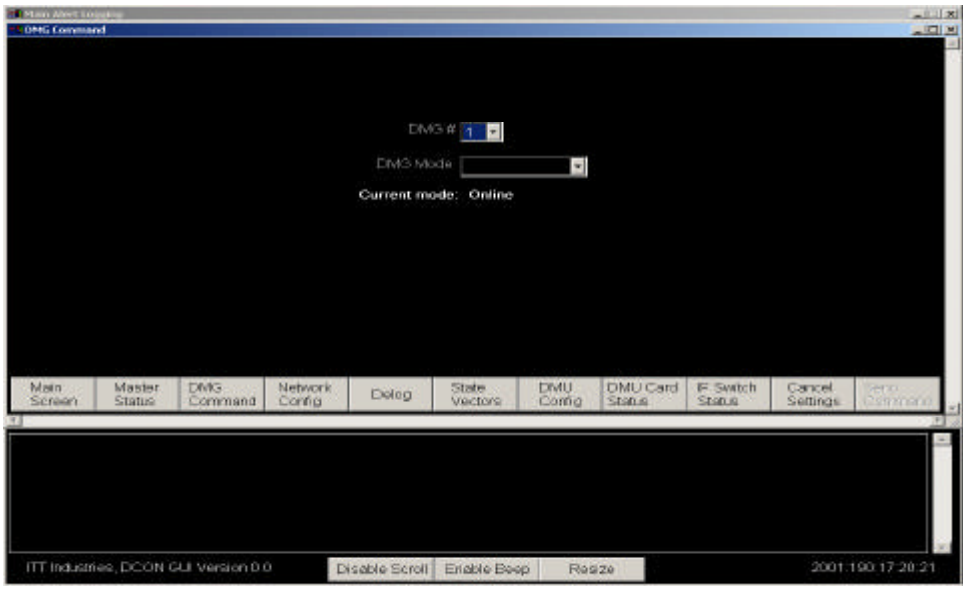

Exhibit B.4-7: DMG Command Window

DMG Master Status Window – This screen displays the following DMG information 1) status and connectivity for each DMU within a DMG group, 2) status of the DMG Control Processor, 3) status of the DMG Power Supplies, 4) DMG mode (Remote or Local), and 5) status of the DMG Interface. The DMG Master Status Window is shown in Exhibit B.4-8.

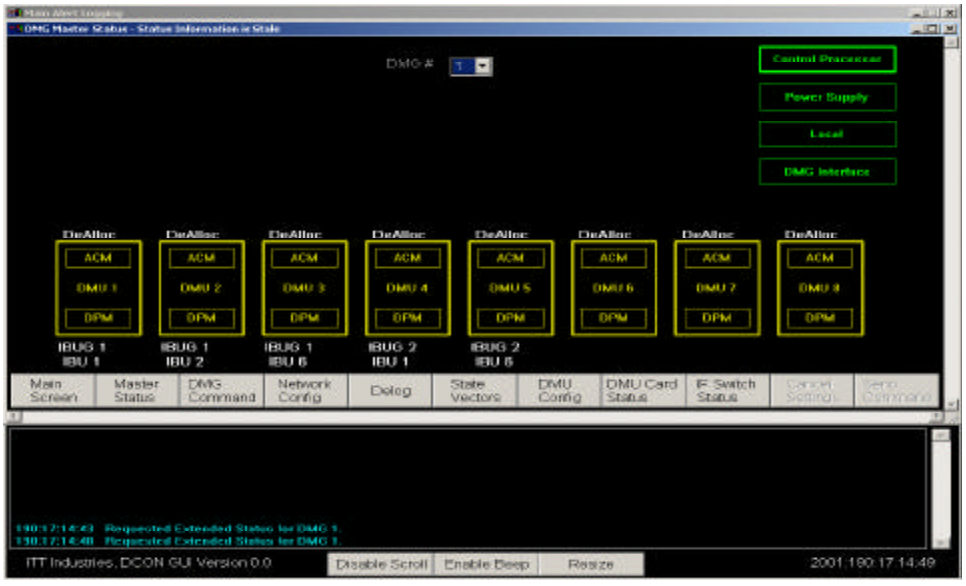

Exhibit B.4-8: DMG Master Status Window

DMU Configuration Window – This screen allows the operator to configure a DMU from the GUI. The operator can set the PN Code, Data Rate, Symbol Format, Data Format, Frequency Uncertainty and Transmitter Frequency Offset. The DMU Configuration Window is shown in Exhibit B.4-9.

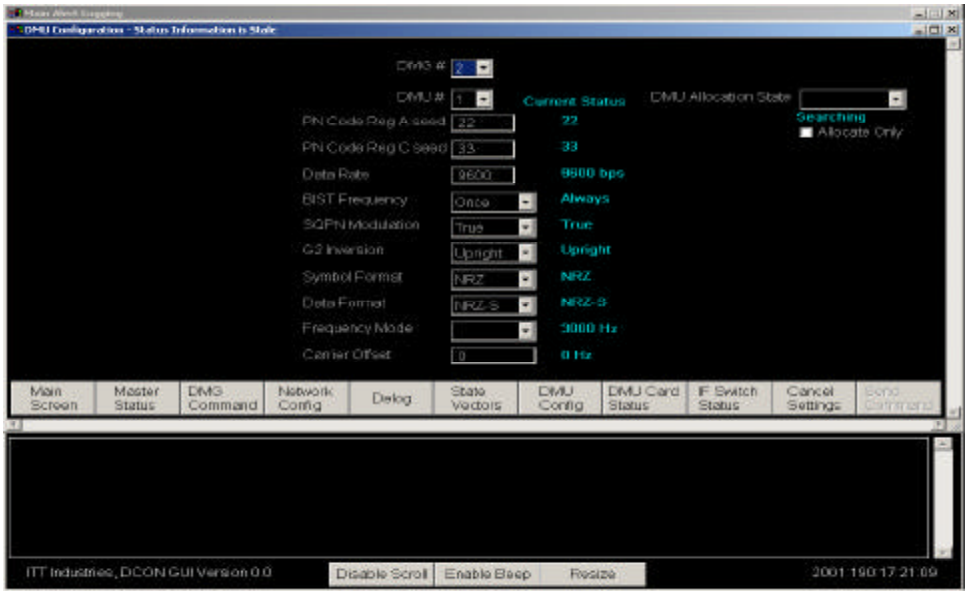

Exhibit B.4-9: DMU Configuration Window

DMU Card Status Window – This screen displays the current status parameters for any DMU card. The DMU Card Window is shown in Exhibit B.4-10.

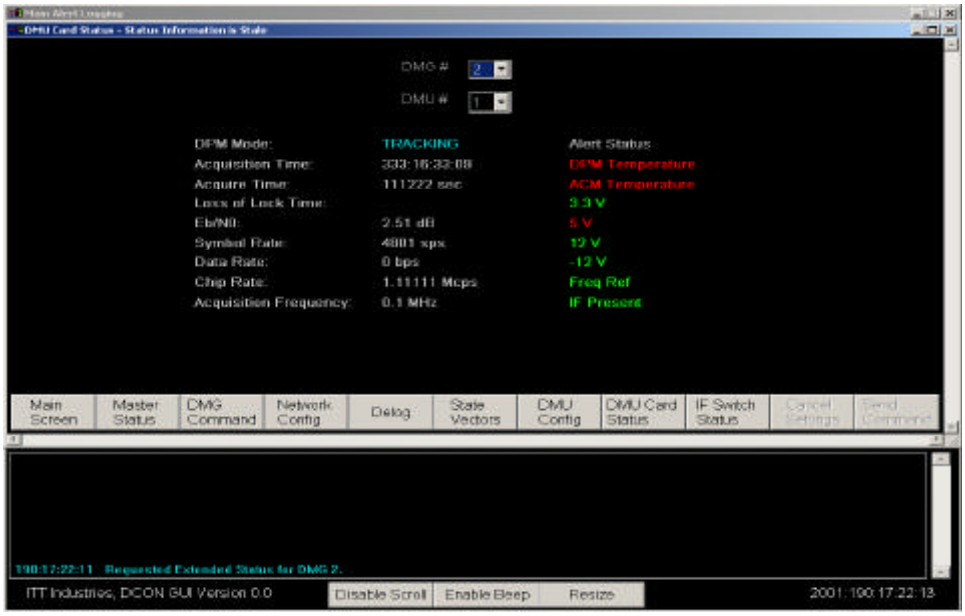

Exhibit B.4-10: DMU Card Status Window

DMU Control Window – This screen allows the operator to enter customer and TDRS state vectors. The DMU Control Window is shown in Exhibit B.4-11.

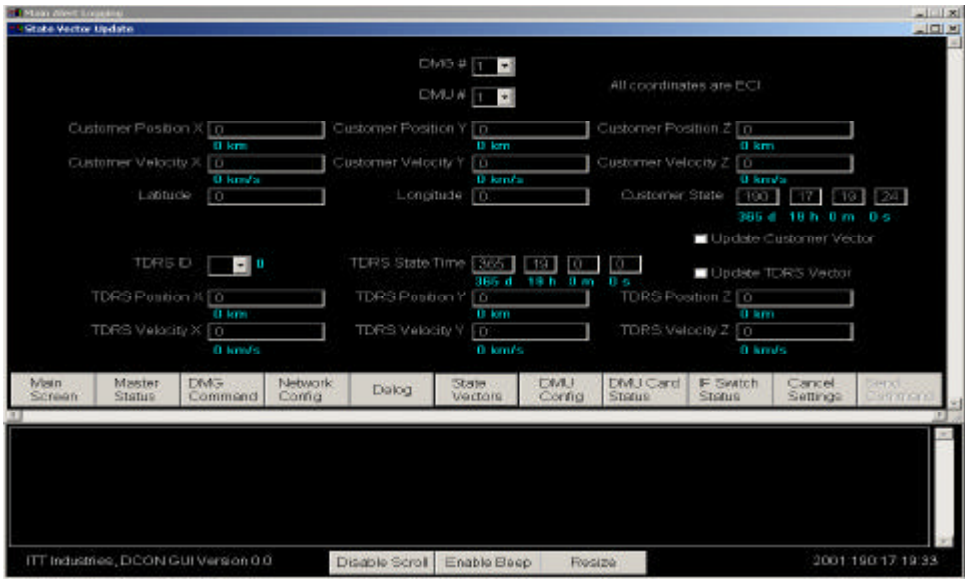

Exhibit B.4-11: DMU Control Window

DMG Report Window – This screen allows the operator to request DMG status reports. The returned status reports are returned to the screen for viewing or can be printed. The DMG Report Window is shown in TBD.

B.5 TGBFS EMC CONTROLLER (ECON)

B.5.1 ECON Executables

The ECON Computer Software Configuration Item (CSCI) resides on a 19'' rack-mounted Pentium II based PC. ECON requires Windows NT 4.0, Terminal Server Edition, as the operating system and Microsoft Access as a database engine to control the update and archiving of status information received from the EMC. ECON contains 512 MB of Random Access Memory (RAM), a 9.1 GB hard drive, a 1.44 MB floppy drive, a CD-ROM drive a, two 10/100 Ethernet adapters, standard keyboard, mouse and video interfaces. The Customer will be able to receive data through a Client/Server application over the Internet. ECON will provide a GUI to allow operators to enter commands for the EMC CSCI and display all the status information.

B.5.2 ECON Configuration Files

No configuration files are required to support ECON processing.

B.5.3 ECON MMI Screens

The following are the MMI screens employed by ECON:

ECON Network Configuration Window – This screen allows the operator to enter the IP addresses of the ECP CSCI. It will store this entry into the database, which will be used by Manage EMC Interface CSC to make connection with ECP CSCI. It will read the IP address of the DASCON interface card from the

database and will display it on the screen. The ECON Network Configuration Window is shown in Exhibit B.5-1.

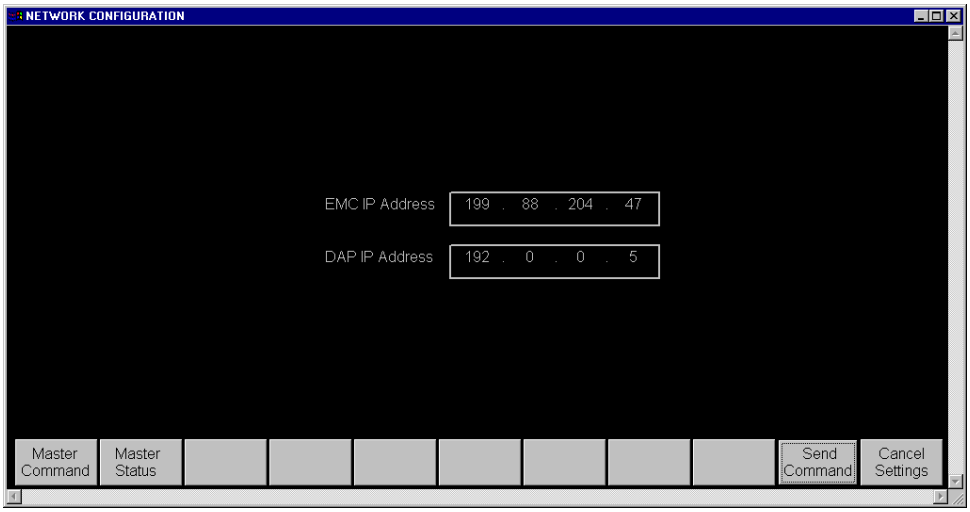

Exhibit B.5-1: ECON Network Configuration Window

ECON Master Command Window – This screen allows the operator to send commands to the EMC. The operator has ability to change modes and reset or change TDRS flight numbers. This window will also allow the operator to access other EMC configuration parameters, via their associated windows. The ECON Master Command Window is shown in Exhibit B.5-2.

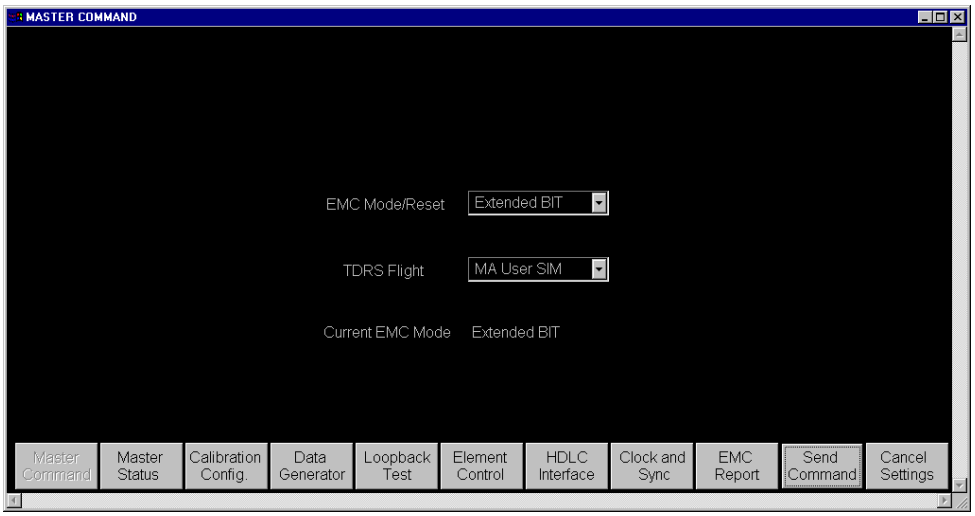

Exhibit B.5-2: Master Command Window

ECON Master Status Window – This screen displays EMC chassis, board level and Global Element statuses. This window can invoke other windows such as Manage Node, Manage Clock/Sync, Manage EMC HDLC Interface, Manage EMC CMP, Manage EMC Command, Manage Element Control and Manage EMC Control Processor. The ECON Master Status Window is shown in Exhibit B.5-3.

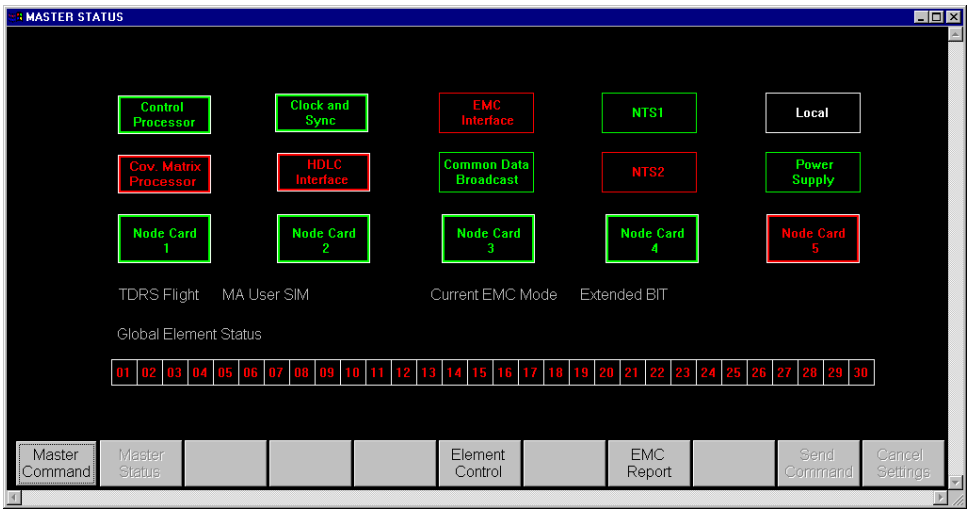

Exhibit B.5-3: ECON Master Status Window

ECON Element Status & Controller Window – This screen displays individual element status for Self-calibration, ADQS parity, ADQS channel, Delay FIFO, Element Power, Node Board and Global. It also allows an operator to manually set global elements 'on' or 'off" and then send a command to the EMC through the database. The ECON Element Status & Controller Window is shown in Exhibit B.5-4

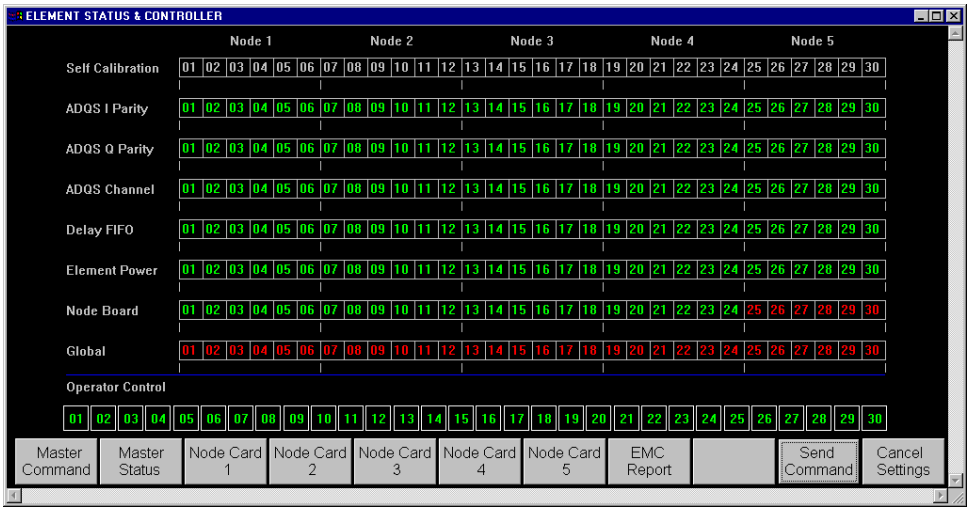

Exhibit B.5-4: ECON Element Status & Controller Window

EMC Report Window – This screen will accept operator specified report requests and send them to the ECP CSCI. It will then wait for the ECP to respond with the requested report and display it on the Report Window. The EMC Report Window is shown in Exhibit B.5-5.

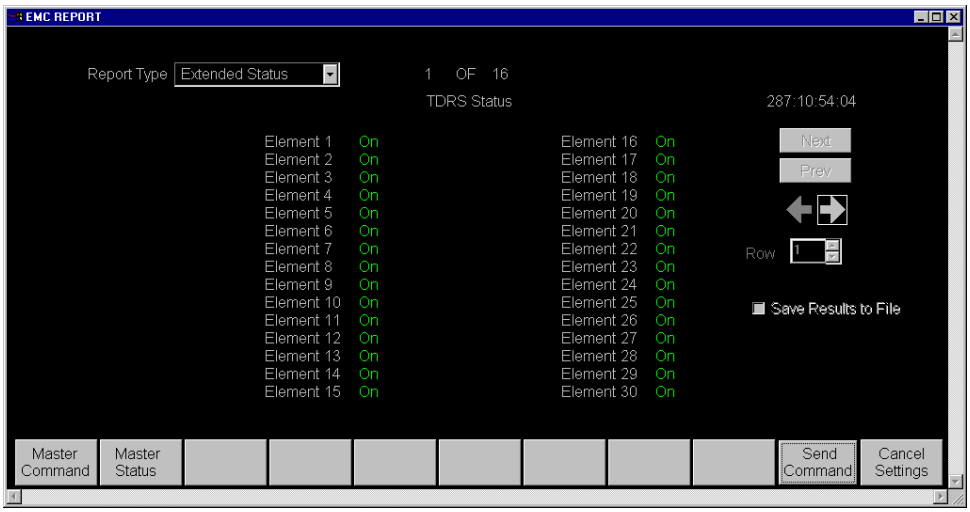

Exhibit B.5-5: EMC Report Window

ECON Array Calibration Window – This screen displays Array Calibration information, TDRS state vectors and the computed direction of cosines values. The ECON Array Calibration Window is shown in Exhibit B.5-6.

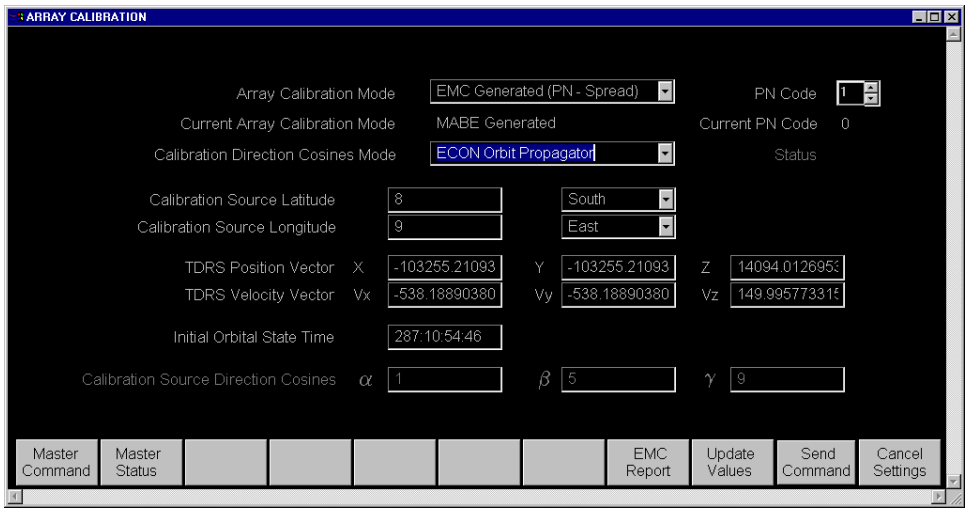

Exhibit B.5-6: ECON Array Calibration Window

EMC Loopback Test Window – This screen allows the operator to control and coordinate the execution of a loopback test. Upon completion of the individual test, test results will be displayed on the window. The EMC Loopback Test Window is shown in Exhibit B.5-7.

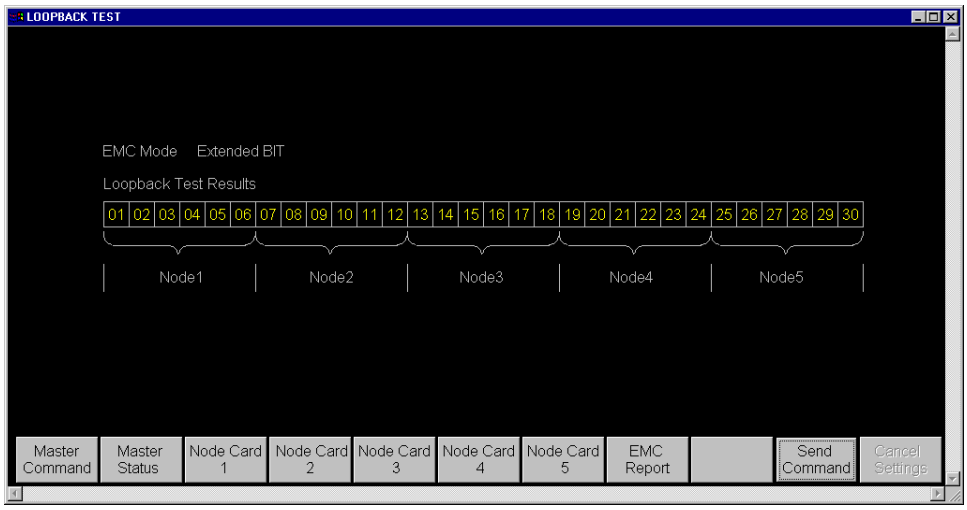

Exhibit B.5-7: EMC Loopback Test Window

ECON HDCL Interface Window – This screen displays the current primary/redundant HDLC interface selection and the status of each interface. It will also allow the operator to change the configuration by sending a command to the ECP through the database. The ECON HDCL Interface Window is shown in Exhibit B.5-8.

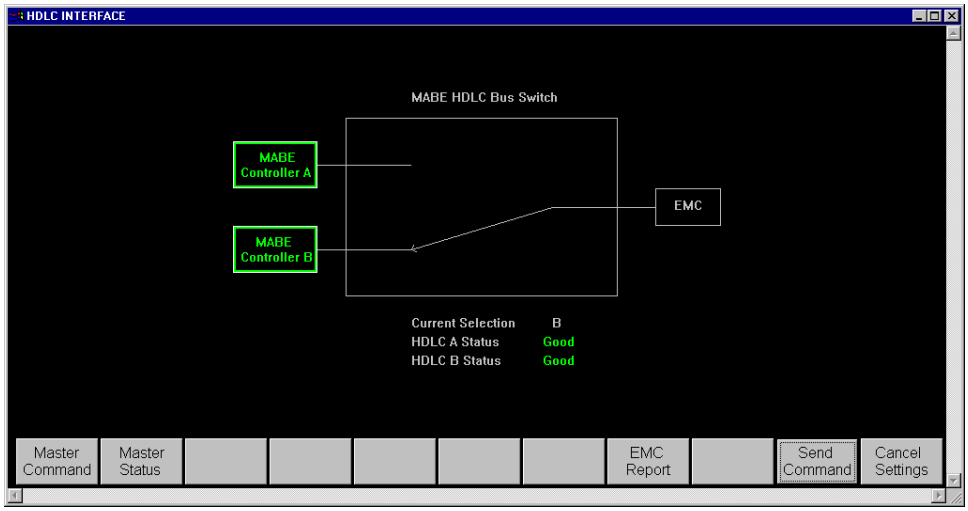

Exhibit B.5-18: ECON HDCL Interface Window

ECON Clock/Sync Window – This screen displays the court status and configuration of the EMC Clock and Synchronization Card. It also allows an operator to manually select the EMC external/internal clock source. The ECON Clock/Sync Window is shown in Exhibit B.5-9.

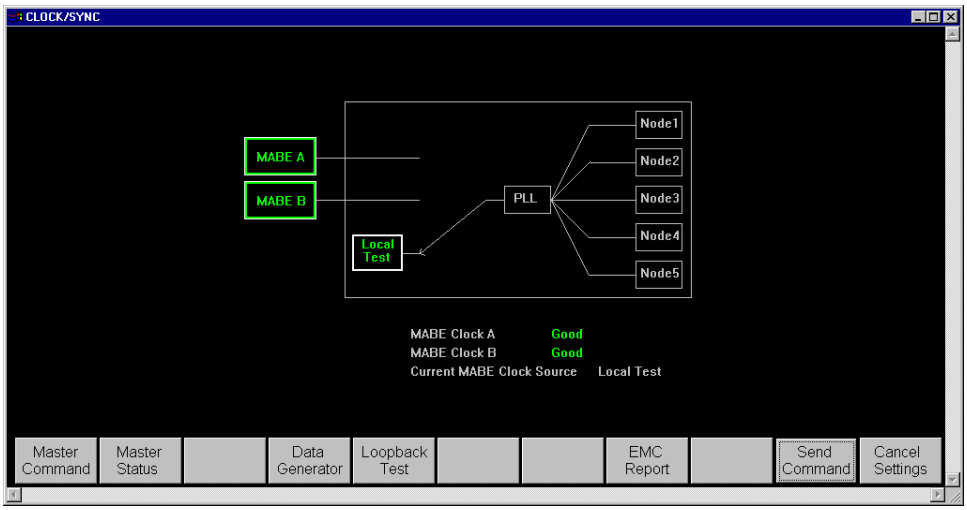

Exhibit B.5-9: ECON Clock/Sync Window

ECON Control Processor Window – This screen displays the status of the ECP firmware and VxWorks operating system. It will update the window's status from the database once per second. The ECON Control Processor Window is shown in Exhibit B.5-10.

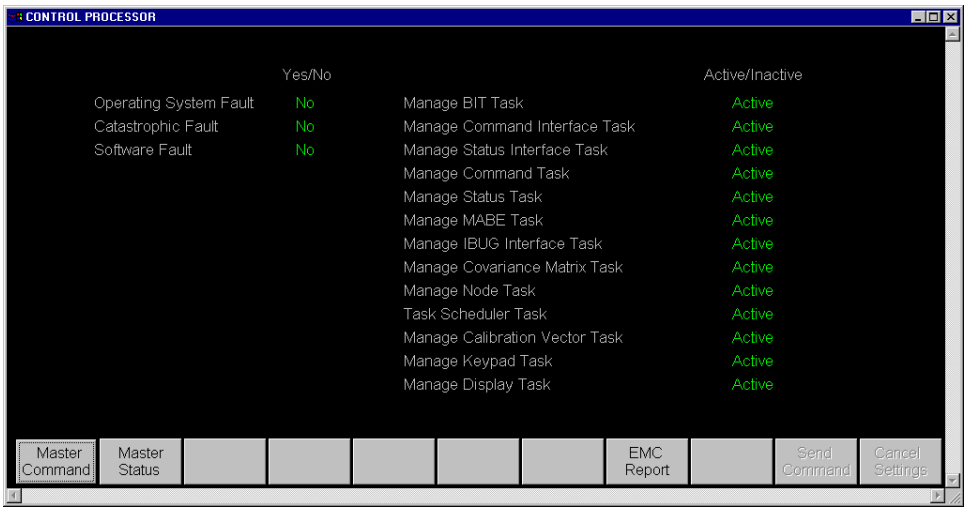

Exhibit B.5-10: ECON Control Processor Window

ECON Covariance Matrix Processor Window – This screen displays display status of the EMC Sharc PMC and covariance matrix calculation errors. The window's status will be updated from the shared memory once per second. The ECON Covariance Matrix Processor is shown in Exhibit B.5-11.

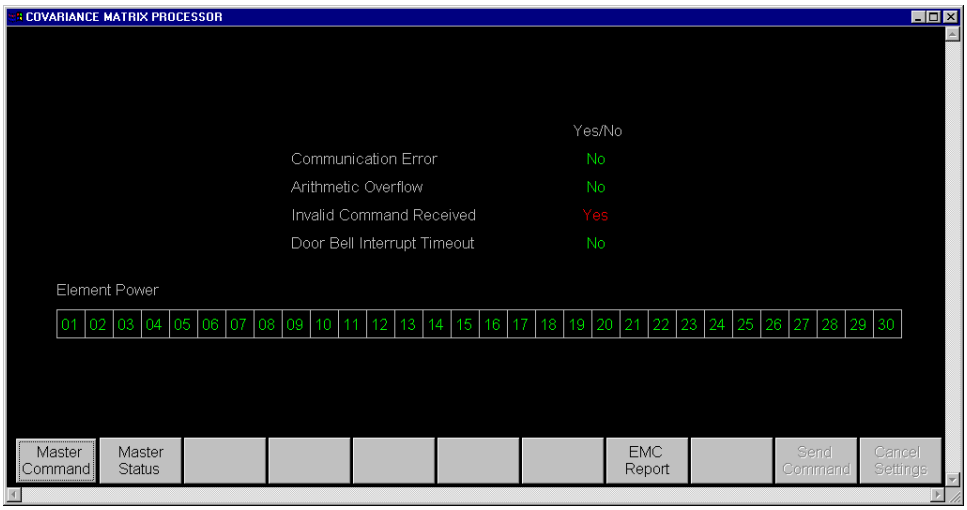

Exhibit B.5-11: ECON Covariance Matrix Processor Window

ECON Data Generator Window – This screen allows the operator to select a scenario and generate a data file. It will then create a data file so EMC Interface can send that information to the EMC CSCI. This Window can invoke other windows such as Manage Master Command and Manage Master Status. The ECON Data Generator Window is shown in Exhibit B.5-12.

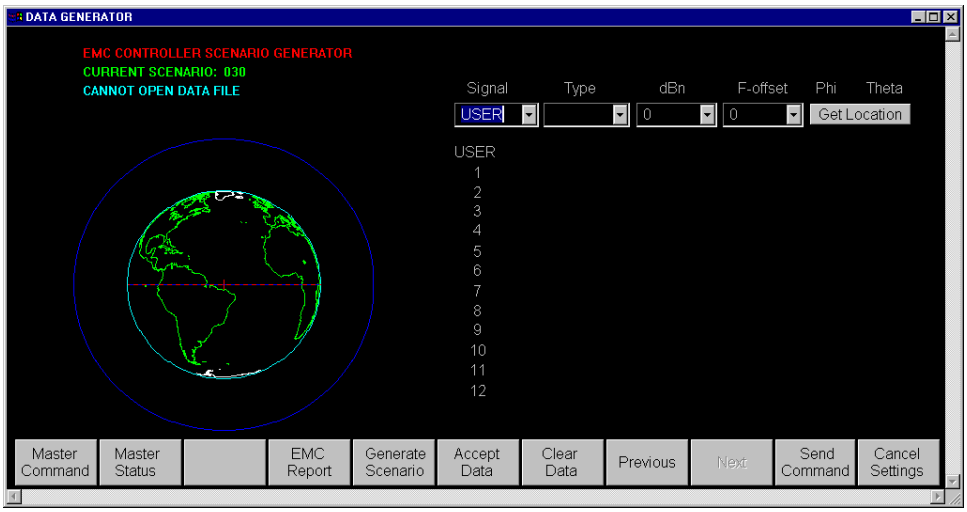

Exhibit B.5-12: ECON Data Generator Window

APPENDIX C. DETAILED CUSTOMER PARAMETERS

C.1 CUSTOMER PRAMETERS

C.1.1 Q1 Customer Set

TBD

C.1.2 Q2 Customer Set

TBD

C.1.3 Q4 Customer Set

TBD

C.1.4 Q6 Customer Set

TBD

C.1.5 F2 Customer Set

TBD

C.1.6 F3 Customer Set

TBD

C.2 DASCON CUSTOMER DATABASE

C.2.1 Event # 1

C.2.1.1. Enter DAS Customer in DASCON Database

Procedures

1. ____ DAS Test Operator opens TBD.
2. ____ DAS Test Operator verifies the TBD is opened.
3. ____ DAS Test Operator TBD
4. ____ QA Engineer closes the WSGT DAS hardware rack back panel.

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

APPENDIX D. PRE-TEST PROCEDURES

D.1 START-UP

D.1.1 Event # 1

D.1.1.1. Verify WSGT Wire Connections

Procedures

1. ____ Quality Assurance (QA) Engineer opens the back panel of the WSGT DAS hardware rack.
2. ____ QA Engineer verifies the WSGT DAS hardare wire connections are in agreement with the connections shown in the 'Wiring Diagram, Demand Access System, WSGT' drawing no. 026-600012-01.
3. ____ QA Engineer closes the WSGT DAS hardware rack back panel.

Comments

D.1.1.2. Verify GRGT Wire Connections

Procedures

1. ____ QA Engineer opens the back panel of the GRGT DAS hardware rack.
2. ____ QA Engineer verifies the GRGT DAS hardware wire connections are in agreement with the connections showm in the 'Wiring Diagram, Demand Access System, GRGT' drawing no. 026-600012-02.
3. ____ QA Engineer closes the GRGT DAS hardware rack back panel.

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.2 Event # 2

D.1.2.1. Power WSGT Mechanical & Power CI

Procedures

TBD

Comments

D.1.2.2. Power GRGT Mechanical & Power CI

Procedures

TBD

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.3 Event # 3

D.1.3.1. Power On DASCON PC

Procedures

1. ____ DAS operator powers on the DASCON PC by pressing the power button on the DASCON PC.
2. ____ DAS operator verifies the DASCON PC is powered on, by noting the power LED is lit.
3. ____ DAS operator powers on the DASCON LCM terminal by pressing the power button on the DASCON terminal.
4. ____ DAS operator verifies the DASCON Monitor is powered on, by noting the correct LED is lit.
5. ____ DAS operator verifies the Linux 7.0 logon screen is displayed on the DASCON LCM following the boot process.
6. ____ DAS operator enters the username TBD in the username field of the logon screen.
7. ____ DAS operator verifies the username is correct and displayed in the correct field.
8. ____ DAS operator enters the password TBD in the password field of the logon screen.
9. ____ DAS operator verifies the password is correct and displayed in the correct field.
10. ____ DAS operator selects the logon button from the logon screen.
11. ____ DAS operator verifies the logon screen disappears and user environment is being set.
12. ____ DAS operator opens a X terminal by selecting the X-Term icon from the application panel.
13. ____ DAS operator verifies the X terminal is opened.

Comments

D.1.3.2. Verify DASCON Software Version

Procedures

1. ____ DAS operator changes directory to TBD, by typing ‘cd /TBD/… [Enter]’.

2. ____ DAS operator verifies they are in a new directory by typing ‘pwd [Enter]’ and noting the directory is TBD.

3. ____ QA Engineer views the DASCON executable name and the DASCON executable file size by typing ‘ls –al [Enter]’.

4. ____ QA Engineer verifies the executable name is the latest version of managed DASCON software.

5. ____ QA Engineer verifies the executable file size corresponds to the latest version of managed DASCON software.

Comments

D.1.3.3. Verify DASCON Database

Procedures

1. ____ DAS operator opens the DASCON Oracle database by TBD.

2. ____ QA Engineer verifies the database tables present correspond to the DASCON Initial Database tables shown in Exhibit D.2-1, in Section D.2.

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.4 Event # 4

D.1.4.1. Power On WSGT ICON

Procedures

1. ____ DAS operator powers on the ICON PC by pressing the power button on the ICON PC.

2. ____ DAS operator verifies the ICON PC is powered on, by noting the power LED is lit.

3. ____ DAS operator powers on the ICON LCM terminal by pressing the power button on the ICON terminal.

4. ____ DAS operator verifies the ICON Monitor is powered on, by noting the correct LED is lit.

5. ____ DAS operator verifies the Windows NT screen is displayed on the ICON LCM following the boot process.

6. ____ DAS operator presses the ‘Ctrl + Alt + Del’ buttons at the same time on the ICON keyboard.

7. ____ DAS operator verifies the Windows NT logon screen is opened.

8. ____ DAS operator enters the username TBD in the username field of the logon screen.

9. ____ DAS operator verifies the username is correct and displayed in the correct field.
10. ____ DAS operator enters the password TBD in the password field of the logon screen.
11. ____ DAS operator verifies the password is correct and displayed in the correct field.
12. ____ DAS operator selects the logon button from the logon screen.
13. ____ DAS operator verifies the logon screen disappears and user environment is being set.

Comments

D.1.4.2. Verify ICON Software Version

Procedures

1. ____ QA Engineer right-clicks on the ICON Backend icon.
2. ____ QA Engineer verifies the command window is opened.
3. ____ QA Engineer selects the Properties field from the command window.
4. ____ QA Engineer verifies the Properties window is opened.
5. ____ QA Engineer verifies the ICON backend executable is the latest managed ICON backend executable name.
6. ____ QA Engineer selects the Version Tab from the Properties window.
7. ____ QA Engineer verifies the Software Version information is displayed.
8. ____ QA Engineer verifies the version of the ICON backend software is identical to the managed ICON backend executable version.
9. ____ QA Engineer right-clicks on the ICON Frontend icon.
10. ____ QA Engineer verifies the command window is opened.
11. ____ QA Engineer selects the Properties field from the command window.
12. ____ QA Engineer verifies the Properties window is opened.
13. ____ QA Engineer verifies the ICON frontend executable is the latest managed ICON frontend executable name.
14. ____ QA Engineer selects the Version Tab from the Properties window.
15. ____ QA Engineer verifies the Software Version information is displayed.
16. ____ QA Engineer verifies the version of the ICON frontend software is identical to the managed ICON frontend executable version.

Comments

D.1.4.3. Verify ICON Database

Procedures

1. ____ DAS operator opens the ICON database by TBD.
2. ____ QA Engineer verifies the database tables present correspond to the ICON Database tables shown in Exhibit D.3-1, in Section D.3.
3. ____ DAS operator opens the RAM Drive directory by TBD.
4. ____ DAS operator verifies the TBD file is present.

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.5 Event # 5

D.1.5.1. Power On WSGT DCON

Procedures

1. ____ DAS operator powers on the DCON PC by pressing the power button on the DCON PC.
2. ____ DAS operator verifies the DCON PC is powered on, by noting the power LED is lit.
3. ____ DAS operator powers on the DCON LCM terminal by pressing the power button on the DCON terminal.
4. ____ DAS operator verifies the DCON Monitor is powered on, by noting the correct LED is lit.
5. ____ DAS operator verifies the Windows NT screen is displayed on the DCON LCM following the boot process.
6. ____ DAS operator presses the 'Ctrl + Alt + Del' buttons at the same time on the DCON keyboard.
7. ____ DAS operator verifies the Windows NT logon screen is opened.
8. ____ DAS operator enters the username TBD in the username field of the logon screen.
9. ____ DAS operator verifies the username is correct and displayed in the correct field.
10. ____ DAS operator enters the password TBD in the password field of the logon screen.
11. ____ DAS operator verifies the password is correct and displayed in the correct field.
12. ____ DAS operator selects the logon button from the logon screen.
13. ____ DAS operator verifies the logon screen disappears and user environment is being set.

Comments

D.1.5.2. Verify DCON Software Version

Procedures

1. ____ QA Engineer right-clicks on the DCON Backend icon.
2. ____ QA Engineer verifies the command window is opened.
3. ____ QA Engineer selects the Properties field from the command window.
4. ____ QA Engineer verifies the Properties window is opened.
5. ____ QA Engineer verifies the DCON backend executable is the latest managed DCON backend executable name.
6. ____ QA Engineer selects the Version Tab from the Properties window.
7. ____ QA Engineer verifies the Software Version information is displayed.
8. ____ QA Engineer verifies the version of the DCON backend software is identical to the managed DCON backend executable version.
9. ____ QA Engineer right-clicks on the DCON Frontend icon.
10. ____ QA Engineer verifies the command window is opened.
11. ____ QA Engineer selects the Properties field from the command window.
12. ____ QA Engineer verifies the Properties window is opened.
13. ____ QA Engineer verifies the DCON frontend executable is the latest managed DCON frontend executable name.
14. ____ QA Engineer selects the Version Tab from the Properties window.
15. ____ QA Engineer verifies the Software Version information is displayed.
16. ____ QA Engineer verifies the version of the DCON frontend software is identical to the managed DCON frontend executable version.

Comments

D.1.5.3. Verify DCON Database

Procedures

1. ____ DAS operator opens the DCON database by TBD.
2. ____ QA Engineer verifies the database tables present correspond to the DCON Database tables shown in Exhibit D.4-1, in Section D.4.
3. ____ DAS operator opens the RAM Drive directory by TBD.
4. ____ QA Engineer verifies the DCON_status.txt RAM file is present.
5. ____ QA Engineer verifies the DMG_1_Status.txt RAM file is present.

6. ____ QA Engineer verifies the DMG_2_Status.txt RAM file is present.
7. ____ QA Engineer verifies the DMG_3_Status.txt RAM file is present.
8. ____ QA Engineer verifies the DMG_4_Status.txt RAM file is present.
9. ____ QA Engineer verifies the DMG_5_Status.txt RAM file is present.
10. ____ QA Engineer verifies the DMG_6_Status.txt RAM file is present.
11. ____ QA Engineer verifies the DMG_7_Status.txt RAM file is present.
12. ____ QA Engineer verifies the DMG_8_Status.txt RAM file is present.
13. ____ QA Engineer verifies the TDRS_vectors.txt RAM file is present.
14. ____ QA Engineer verifies the IfswitchStatus.txt RAM file is present.

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.6 Event # 6

D.1.6.1. Power On WSGT ECON

Procedures

1. ____ DAS operator powers on the ECON PC by pressing the power button on the ECON PC.
2. ____ DAS operator verifies the ECON PC is powered on, by noting the power LED is lit.
3. ____ DAS operator powers on the ECON LCM terminal by pressing the power button on the ECON terminal.
4. ____ DAS operator verifies the ECON Monitor is powered on, by noting the correct LED is lit.
5. ____ DAS operator verifies the Windows NT screen is displayed on the ECON LCM following the boot process.
6. ____ DAS operator presses the 'Ctrl + Alt + Del' buttons at the same time on the ECON keyboard.
7. ____ DAS operator verifies the Windows NT logon screen is opened.
8. ____ DAS operator enters the username TBD in the username field of the logon screen.
9. ____ DAS operator verifies the username is correct and displayed in the correct field.
10. ____ DAS operator enters the password TBD in the password field of the logon screen.
11. ____ DAS operator verifies the password is correct and displayed in the correct field.
12. ____ DAS operator selects the logon button from the logon screen.
13. ____ DAS operator verifies the logon screen disappears and user environment is being set.

Comments

D.1.6.2. Verify ECON Software Version

Procedures

1. ____ QA Engineer right-clicks on the ECON Backend icon.
2. ____ QA Engineer verifies the command window is opened.
3. ____ QA Engineer selects the Properties field from the command window.
4. ____ QA Engineer verifies the Properties window is opened.
5. ____ QA Engineer verifies the ECON backend executable is the latest managed ECON backend executable name.
6. ____ QA Engineer selects the Version Tab from the Properties window.
7. ____ QA Engineer verifies the Software Version information is displayed.
8. ____ QA Engineer verifies the version of the ECON backend software is identical to the managed ECON backend executable version.
9. ____ QA Engineer right-clicks on the ECON Frontend icon.
10. ____ QA Engineer verifies the command window is opened.
11. ____ QA Engineer selects the Properties field from the command window.
12. ____ QA Engineer verifies the Properties window is opened.
13. ____ QA Engineer verifies the ECON frontend executable is the latest managed ECON frontend executable name.
14. ____ QA Engineer selects the Version Tab from the Properties window.
15. ____ QA Engineer verifies the Software Version information is displayed.
16. ____ QA Engineer verifies the version of the ECON frontend software is identical to the managed ECON frontend executable version.

Comments

D.1.6.3. Verify ECON Database

Procedures

1. ____ DAS operator opens the ECON database by TBD.
2. ____ QA Engineer verifies the database tables present correspond to the ECON Initial Database tables shown in Exhibit D.5-1, in Section D.5.

3. ____ DAS operator opens the RAM Drive directory by TBD.
4. ____ QA Engineer verifies the cov_mat_report.tmp file is present.
5. ____ QA Engineer verifies the noise_vec_report.tmp file is present.
6. ____ QA Engineer verifies the calib_report.tmp file is present.
7. ____ QA Engineer verifies the combine.txt file is present.
8. ____ QA Engineer verifies the DCON_status.txt RAM file is present.
9. ____ QA Engineer verifies the TBD RAM file is present (TDRS State Vector)

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.7 Event # 7

D.1.7.1. Power On GRGT ICON

Procedures

1. ____ DAS operator powers on the ICON PC by pressing the power button on the ICON PC.
2. ____ DAS operator verifies the ICON PC is powered on, by noting the power LED is lit.
3. ____ DAS operator powers on the ICON LCM terminal by pressing the power button on the ICON terminal.
4. ____ DAS operator verifies the ICON Monitor is powered on, by noting the correct LED is lit.
5. ____ DAS operator verifies the Windows NT screen is displayed on the ICON LCM following the boot process.
6. ____ DAS operator presses the 'Ctrl + Alt + Del' buttons at the same time on the ICON keyboard.
7. ____ DAS operator verifies the Windows NT logon screen is opened.
8. ____ DAS operator enters the username TBD in the username field of the logon screen.
9. ____ DAS operator verifies the username is correct and displayed in the correct field.
10. ____ DAS operator enters the password TBD in the password field of the logon screen.
11. ____ DAS operator verifies the password is correct and displayed in the correct field.
12. ____ DAS operator selects the logon button from the logon screen.
13. ____ DAS operator verifies the logon screen disappears and user environment is being set.

Comments

D.1.7.2. Verify ICON Software Version

Procedures

1. ____ QA Engineer right-clicks on the ICON Backend icon.
2. ____ QA Engineer verifies the command window is opened.
3. ____ QA Engineer selects the Properties field from the command window.
4. ____ QA Engineer verifies the Properties window is opened.
5. ____ QA Engineer verifies the ICON backend executable is the latest managed ICON backend executable name.
6. ____ QA Engineer selects the Version Tab from the Properties window.
7. ____ QA Engineer verifies the Software Version information is displayed.
8. ____ QA Engineer verifies the version of the ICON backend software is identical to the managed ICON backend executable version.
9. ____ QA Engineer right-clicks on the ICON Frontend icon.
10. ____ QA Engineer verifies the command window is opened.
11. ____ QA Engineer selects the Properties field from the command window.
12. ____ QA Engineer verifies the Properties window is opened.
13. ____ QA Engineer verifies the ICON frontend executable is the latest managed ICON frontend executable name.
14. ____ QA Engineer selects the Version Tab from the Properties window.
15. ____ QA Engineer verifies the Software Version information is displayed.
16. ____ QA Engineer verifies the version of the ICON frontend software is identical to the managed ICON frontend executable version.

Comments

D.1.7.3. Verify ICON Database

Procedures

1. ____ DAS operator opens the ICON database by TBD.
2. ____ QA Engineer verifies the database tables present correspond to the ICON Database tables shown in Exhibit D.3-1, in Section D.3.
3. ____ DAS operator opens the RAM Drive directory by TBD.

4. ____ DAS operator verifies the TBD file is present.

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.8 Event # 8

D.1.8.1. Power On GRGT DCON

Procedures

1. ____ DAS operator powers on the DCON PC by pressing the power button on the DCON PC.
2. ____ DAS operator verifies the DCON PC is powered on, by noting the power LED is lit.
3. ____ DAS operator powers on the DCON LCM terminal by pressing the power button on the DCON terminal.
4. ____ DAS operator verifies the DCON Monitor is powered on, by noting the correct LED is lit.
5. ____ DAS operator verifies the Windows NT screen is displayed on the DCON LCM following the boot process.
6. ____ DAS operator presses the 'Ctrl + Alt + Del' buttons at the same time on the DCON keyboard.
7. ____ DAS operator verifies the Windows NT logon screen is opened.
8. ____ DAS operator enters the username TBD in the username field of the logon screen.
9. ____ DAS operator verifies the username is correct and displayed in the correct field.
10. ____ DAS operator enters the password TBD in the password field of the logon screen.
11. ____ DAS operator verifies the password is correct and displayed in the correct field.
12. ____ DAS operator selects the logon button from the logon screen.
13. ____ DAS operator verifies the logon screen disappears and user environment is being set.

Comments

D.1.8.2. Verify DCON Software Version

Procedures

1. ____ QA Engineer right-clicks on the DCON Backend icon.
2. ____ QA Engineer verifies the command window is opened.
3. ____ QA Engineer selects the Properties field from the command window.

4. ____ QA Engineer verifies the Properties window is opened.
5. ____ QA Engineer verifies the DCON backend executable is the latest managed DCON backend executable name.
6. ____ QA Engineer selects the Version Tab from the Properties window.
7. ____ QA Engineer verifies the Software Version information is displayed.
8. ____ QA Engineer verifies the version of the DCON backend software is identical to the managed DCON backend executable version.
9. ____ QA Engineer right-clicks on the DCON Frontend icon.
10. ____ QA Engineer verifies the command window is opened.
11. ____ QA Engineer selects the Properties field from the command window.
12. ____ QA Engineer verifies the Properties window is opened.
13. ____ QA Engineer verifies the DCON frontend executable is the latest managed DCON frontend executable name.
14. ____ QA Engineer selects the Version Tab from the Properties window.
15. ____ QA Engineer verifies the Software Version information is displayed.
16. ____ QA Engineer verifies the version of the DCON frontend software is identical to the managed DCON frontend executable version.

Comments

D.1.8.3. Verify DCON Database

Procedures

1. ____ DAS operator opens the DCON database by TBD.
2. ____ QA Engineer verifies the database tables present correspond to the DCON Database tables shown in Exhibit D.3-1, in Secrion D.3.
3. ____ DAS operator opens the RAM Drive directory by TBD.
4. ____ QA Engineer verifies the DCON_status.txt RAM file is present.
5. ____ QA Engineer verifies the DMG_1_Status.txt RAM file is present.
6. ____ QA Engineer verifies the DMG_2_Status.txt RAM file is present.
7. ____ QA Engineer verifies the DMG_3_Status.txt RAM file is present.
8. ____ QA Engineer verifies the DMG_4_Status.txt RAM file is present.
9. ____ QA Engineer verifies the DMG_5_Status.txt RAM file is present.
10. ____ QA Engineer verifies the DMG_6_Status.txt RAM file is present.

11. ____ QA Engineer verifies the DMG_7_Status.txt RAM file is present.
12. ____ QA Engineer verifies the DMG_8_Status.txt RAM file is present.
13. ____ QA Engineer verifies the TDRS_vectors.txt RAM file is present.
14. ____ QA Engineer verifies the IfswitchStatus.txt RAM file is present.

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.9 Event # 9

D.1.9.1. Power On GRGT ECON

Procedures

1. ____ DAS operator powers on the ECON PC by pressing the power button on the ECON PC.
2. ____ DAS operator verifies the ECON PC is powered on, by noting the power LED is lit.
3. ____ DAS operator powers on the ECON LCM terminal by pressing the power button on the ECON terminal.
4. ____ DAS operator verifies the ECON Monitor is powered on, by noting the correct LED is lit.
5. ____ DAS operator verifies the Windows NT screen is displayed on the ECON LCM following the boot process.
6. ____ DAS operator presses the 'Ctrl + Alt + Del' buttons at the same time on the ECON keyboard.
7. ____ DAS operator verifies the Windows NT logon screen is opened.
8. ____ DAS operator enters the username TBD in the username field of the logon screen.
9. ____ DAS operator verifies the username is correct and displayed in the correct field.
10. ____ DAS operator enters the password TBD in the password field of the logon screen.
11. ____ DAS operator verifies the password is correct and displayed in the correct field.
12. ____ DAS operator selects the logon button from the logon screen.
13. ____ DAS operator verifies the logon screen disappears and user environment is being set.

Comments

D.1.9.2. Verify ECON Software Version

Procedures

1. ____ QA Engineer right-clicks on the ECON Backend icon.

2. ____ QA Engineer verifies the command window is opened.
3. ____ QA Engineer selects the Properties field from the command window.
4. ____ QA Engineer verifies the Properties window is opened.
5. ____ QA Engineer verifies the ECON backend executable is the latest managed ECON backend executable name.
6. ____ QA Engineer selects the Version Tab from the Properties window.
7. ____ QA Engineer verifies the Software Version information is displayed.
8. ____ QA Engineer verifies the version of the ECON backend software is identical to the managed ECON backend executable version.
9. ____ QA Engineer right-clicks on the ECON Frontend icon.
10. ____ QA Engineer verifies the command window is opened.
11. ____ QA Engineer selects the Properties field from the command window.
12. ____ QA Engineer verifies the Properties window is opened.
13. ____ QA Engineer verifies the ECON frontend executable is the latest managed ECON frontend executable name.
14. ____ QA Engineer selects the Version Tab from the Properties window.
15. ____ QA Engineer verifies the Software Version information is displayed.
16. ____ QA Engineer verifies the version of the ECON frontend software is identical to the managed ECON frontend executable version.

Comments

D.1.9.3. Verify ECON Database

Procedures

1. ____ DAS operator opens the ECON database by TBD.
2. ____ QA Engineer verifies the database tables present correspond to the ECON Initial Database tables shown in Exhibit D.5-1, in Section D.5.
3. ____ DAS operator opens the RAM Drive directory by TBD.
4. ____ QA Engineer verifies the cov_mat_report.tmp file is present.
5. ____ QA Engineer verifies the noise_vec_report.tmp file is present.
6. ____ QA Engineer verifies the calib_report.tmp file is present.
7. ____ QA Engineer verifies the combine.txt file is present.
8. ____ QA Engineer DCON_status.txt RAM file is present.

9. ____ QA Engineer verifies the TBD RAM file is present (TDRS State Vector)

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.10 Event # 10

D.1.10.1. Execute DASCON

Procedures

1. ____ DAS operator changes directory to TBD, by typing 'cd /TBD/… [Enter]'.
2. ____ DAS operator verifies they are in a new directory by typing 'pwd [Enter]' and noting the directory is TBD.
3. ____ DAS operator types 'TBD [Enter]', to start the DASCON GUI.
4. ____ DAS operator verifies the DASCON GUI is opened.
5. ____ DAS operator opens the DASCON Main Window by selecting the ITT icon from the DASCON Window.
6. ____ DAS operator verifies the DASCON Main Window, Exhibit B.1-4, is opened.
7. ____ DAS operator selects the x-term icon from the application panel (the icon noting an x terminal already opened).
8. ____ DAS operator types 'TBD [Enter]', to start the DASCON Backend.
9. ____ DAS operator verifies the incremental start-up status of the DASCON backend is noted on the DASCON GUI alert panel.
10. ____ DAS operator verifies the DASCON Software Built-In-Self Test (BIST) is executed, by observing the TBD alert on the DASCON GUI alert panel.
11. ____ DAS operator verifies the status of DASCON displayed on the DASCON Main Window is good (green) following the completion of the DASCON backend window.

Comments

D.1.10.2. Power On WSGT PTP

Procedures

1. ____ DAS operator powers on the PTP Smart hub, by pressing the Power button on the PTP Smart Hub.
2. ____ DAS operator verifies the PTP Smart Hub Power LED is lit.
3. ____ DAS operator powers on the PTP/DMG Data Switch, by pressing the Power button on the Data Switch.

4. ____ DAS operator verifies the PTP/DMG Data Switch Power LED is lit.
5. ____ DAS operator powers on the DAS WSGT PTP (DSER), by pressing the Power button on the PTP.
6. ____ DAS operator verifies the PTP Power LED is lit.
7. ____ DAS operator verifies the PTP monitor displays start-up status on the PTP monitor.
8. ____ DAS operator verifies the PTP BIST is executed, by observing the TBD alert on the PTP monitor.
9. ____ DAS operator verifies the WSGT PTP/DSER has a good (green) status on the DASCON Main Window.

Comments

D.1.10.3. Power On Temperature Monitor

Procedures

1. ____ DAS operator powers on the Temperature Monitor, by TBD.
2. ____ DAS operator verifies the Temperature Monitor BIST is performed, by observing the TBD message given on the FPD.
3. ____ DAS operator verifies the Temperature Monitor Power LED is lit.
4. ____ DAS operator verifies the Temperature Monitor has a good (green) status on the DASCON Main Window.

Comments

D.1.10.4. Power On Time Conversion & Distribution System

Procedures

1. ____ DAS operator powers on the Time Conversion and Distribution System, by TBD.
2. ____ DAS operator verifies the Time Conversion and Distribution System BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the Time Conversion and Distribution System Power LED is lit.
4. ____ DAS operator verifies the IRIG-B has a good status on the DASCON Main Window.

Comments

D.1.10.5. Power On Frequency Distribution System

Procedures

1. ____ DAS operator powers on the Frequency Distribution System, by TBD.
2. ____ DAS operator verifies the Frequency Distribution System BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the Frequency System Power LED is lit.

Comments

D.1.10.6. Execute WSGT ICON

Procedures

1. ____ DAS operator double clicks (using the mouse) on the ICON GUI icon on the Windows NT desktop.
2. ____ DAS operator verifies the ICON GUI is started.
3. ____ DAS operator minimizes the ICON GUI by selecting the minimize button from the upper right hand corner of the ICON GUI.
4. ____ DAS operator double clicks on the ICON Backend icon on the Windows NT desktop.
5. ____ DAS operator verifies the Windows Command Window is opened.
6. ____ DAS operator displays the ICON GUI, by selecting the ICON GUI bar from the Windows application panel.
7. ____ DAS operator verifies the ICON GUI is displayed on the ICON LCM (monitor).
8. ____ DAS operator verifies the incremental start-up status of the ICON backend is noted on the ICON GUI alert panel.
9. ____ DAS operator verifies the ICON Software Built-In-Self Test (BIST) is executed, by observing the TBD alert on the ICON GUI alert panel.
10. ____ DAS operator selects the WSC button from the DASCON Main Window.
11. ____ DAS operator verifies the WSC Main Window, Exhibit B.1-17, is opened.

Comments

D.1.10.7. Power On FO Switch

Procedures

1. ____ DAS operator powers on the FO Switch, by TBD.

2. ____ DAS operator verifies the FO Switch BIST is executed, by observing the TBD message on the FPD.

3. ____ DAS operator verifies the FO Switch Power LED is lit.

Comments

D.1.10.8. Observe WSGT FO Switch Status

Procedures

1. ____ DAS operator views the WSC Main Window.

2. ____ DAS operator verifies the WSGT FO Switch has a good status, highlighted green.

3. ____ DAS operator views the ICON Main Window, Exhibit B.3-1.

4. ____ DAS operator verifies the WSGT FO Switch has a good status.

Comments

D.1.10.9. Power On CDB Switch

Procedures

1. ____ DAS operator powers on the CDB Switch, by TBD.

2. ____ DAS operator verifies the CDB Switch BIST is executed, by observing the TBD message on the FPD.

3. ____ DAS operator verifies the CDB Switch Power LED is lit.

Comments

D.1.10.10. Observe WSGT CDB Switch Status

Procedures

1. ____ DAS operator observes the ICON Main Window.

2. ____ DAS operator verifies the CDB Switch has a good status.

Comments

D.1.10.11. Power On WSGT IBUG-1

Procedures

1. ____ DAS operator powers on the WSGT IBUG-1, by TBD.
2. ____ DAS operator verifies the WSGT IBUG-1 BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the IBUG-1 Power LED is lit.
4. ____ DAS operator verifies the six IBU Built-In-Test (BIT) LEDs turn yellow.
5. ____ DAS operator verifies the six IBU Fault LEDs are extinguished.
6. ____ DAS operator selects the IBUG/ICON button from the WSC Main Window.

Comments

D.1.10.12. Power On WSGT IBUG-2

Procedures

1. ____ DAS operator powers on the WSGT IBUG-2, by TBD.
2. ____ DAS operator verifies the WSGT IBUG-2 BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the IBUG-2 Power LED is lit.
4. ____ DAS operator verifies the six IBU Built-In-Test (BIT) LEDs turn yellow.
5. ____ DAS operator verifies the six IBU Fault LEDs are extinguished.

Comments

D.1.10.13. Observe WSGT IBUG Status

Procedures

1. ____ DAS operator selects the IBUG/ICON button from the WSC Main Window.
2. ____ DAS operator verifies the WSC ICON/IBUG Window, Exhibit B.1-21, is opened.
3. ____ DAS operator verifies the WSGT ICON has a good status on the WSC ICON/IBUG Window..
4. ____ DAS operator verifies IBUG-1 has a good status on the WSC ICON/IBUG Window.
5. ____ DAS operator verifies IBUG-2 has a good status on the WSC ICON/IBUG Window.
6. ____ DAS operator observes the ICON Main Window.

7. ____ DAS operator verifies IBUG-1 has a good status on the ICON Main Window.
8. ____ DAS operator verifies IBUG-2 has a good status on the ICON Main Window.

Comments

D.1.10.14. Execute WSGT DCON

Procedures

1. ____ DAS operator double clicks (using the mouse) on the DCON GUI icon on the Windows NT desktop.
2. ____ DAS operator verifies the DCON GUI is started.
3. ____ DAS operator minimizes the DCON GUI by selecting the minimize button from the upper right hand corner of the DCON GUI.
4. ____ DAS operator double clicks on the DCON Backend icon on the Windows NT desktop.
5. ____ DAS operator verifies the Windows Command Window is opened.
6. ____ DAS operator displays the DCON GUI, by selecting the DCON GUI bar from the Windows application panel.
7. ____ DAS operator verifies the DCON GUI is displayed on the DCON LCM (monitor).
8. ____ DAS operator verifies the incremental start-up status of the DCON backend is noted on the DCON GUI alert panel.
9. ____ DAS operator verifies the DCON Software Built-In-Self Test (BIST) is executed, by observing the TBD alert on the DCON GUI alert panel.
10. ____ DAS operator selects the WSC button from the DASCON Main Window.
11. ____ DAS operator verifies the WSC Main Window is opened.

Comments

D.1.10.15. Power On IF Switch

Procedures

1. ____ DAS operator powers on the IF Switch, by TBD.
2. ____ DAS operator verifies the IF Switch BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the IF Switch Power LED is lit.

Comments

D.1.10.16. Observe WSGT IF Switch Status

Procedures

1. ____ DAS operator views the WSC Main Window.
2. ____ DAS operator verifies the WSGT IF Switch has a good status, highlighted green.
3. ____ DAS operator views the DCON Main Window, Exhibit B.4-2.
4. ____ DAS operator verifies the WSGT IF Switch has a good status.

Comments

D.1.10.17. Power On WSGT DMG-1

Procedures

1. ____ DAS operator powers on the WSGT DMG-1, by TBD.
2. ____ DAS operator verifies the WSGT DMG-1 BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the DMG-1 Power LED is lit.

Comments

D.1.10.18. Observe WSGT DMG Status

Procedures

1. ____ DAS operator selects the DMG/DCON button from the WSC Main Window.
2. ____ DAS operator verifies the WSC DMG/DCON Window, Exhibit B.1-22, is opened.
3. ____ DAS operator verifies the WSGT DCON has a good status on the WSC DMG/DCON Window.
4. ____ DAS operator verifies DMG-1 has a good status on the WSC DMG/DCON Window.
5. ____ DAS operator observes the DCON Main Window.
6. ____ DAS operator verifies DMG-1 has a good status on the DCON Main Window.

Comments

D.1.10.19. Power On WSGT GDIS Router

Procedures

1. ____ DAS operator powers on the WSGT GDIS Router, by pressing the power switch.
2. ____ DAS operator verifies the WSGT GDIS Router Power LED is lit.

Comments

D.1.10.20. Enter TDRS State Vectors

Procedures

1. ____ DAS operator opens the ECON database by TBD.
2. ____ DAS operator verifies the ECON database is opened.
3. ____ DAS operator opens the TBD database module.
4. ____ DAS operator verifies the TBD database is opened.
5. ____ DAS operator enters TBD.

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.1.11 Event 11

D.1.11.1. Power On GRGT GDIS Router

Procedures

1. ____ DAS operator powers on the GRGT GDIS Router, by pressing the power switch.
2. ____ DAS operator verifies the GRGT GDIS Router Power LED is lit.

Comments

D.1.11.2. Power On GRGT PTP

Procedures

1. ____ DAS operator powers on the PTP Smart hub, by pressing the Power button on the PTP Smart Hub.
2. ____ DAS operator verifies the PTP Smart Hub Power LED is lit.

3. ____ DAS operator powers on the PTP/DMG Data Switch, by pressing the Power button on the Data Switch.
4. ____ DAS operator verifies the PTP/DMG Data Switch Power LED is lit.
5. ____ DAS operator powers on the DAS GRGT PTP (DSER), by pressing the Power button on the PTP.
6. ____ DAS operator verifies the PTP Power LED is lit.
7. ____ DAS operator verifies the PTP monitor displays start-up status on the PTP monitor.
8. ____ DAS operator verifies the PTP BIST is executed, by observing the TBD alert on the PTP monitor.
9. ____ DAS operator verifies the GRGT PTP/DSER has a good (green) status on the DASCON Main Window.

Comments

D.1.11.3. Power On GRGT Temperature Monitor

Procedures

1. ____ DAS operator powers on the GRGT Temperature Monitor, by TBD.
2. ____ DAS operator verifies the GRGT Temperature Monitor BIST is performed, by observing the TBD message given on the FPD.
3. ____ DAS operator verifies the GRGT Temperature Monitor Power LED is lit.
4. ____ DAS operator verifies the Temperature Monitor has a good (green) status on the DASCON Main Window.

Comments

D.1.11.4. Power On GRGT Time Conversion & Distribution System

Procedures

1. ____ DAS operator powers on the GRGT Time Conversion and Distribution System, by TBD.
2. ____ DAS operator verifies the GRGT Time Conversion and Distribution System BIST are executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the GRGT Time Conversion and Distribution System Power LED are lit.
4. ____ DAS operator verifies the IRIG-B has a good status on the DASCON Main Window.

Comments

D.1.11.5. Power On GRGT Frequency Distribution System

Procedures

1. ____ DAS operator powers on the GRGT Frequency Distribution System, by TBD.
2. ____ DAS operator verifies the GRGT Frequency Distribution System BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the GRGT Frequency System Power LED is lit.

Comments

D.1.11.6. Execute GRGT ICON

Procedures

1. ____ DAS operator double clicks (using the mouse) on the ICON GUI icon on the Windows NT desktop.
2. ____ DAS operator verifies the ICON GUI is started.
3. ____ DAS operator minimizes the ICON GUI by selecting the minimize button from the upper right hand corner of the ICON GUI.
4. ____ DAS operator double clicks on the ICON Backend icon on the Windows NT desktop.
5. ____ DAS operator verifies the Windows Command Window is opened.
6. ____ DAS operator displays the ICON GUI, by selecting the ICON GUI bar from the Windows application panel.
7. ____ DAS operator verifies the ICON GUI is displayed on the ICON LCM (monitor).
8. ____ DAS operator verifies the incremental start-up status of the ICON backend is noted on the ICON GUI alert panel.
9. ____ DAS operator verifies the ICON Software Built-In-Self Test (BIST) is executed, by observing the TBD alert on the ICON GUI alert panel.
10. ____ DAS operator selects the GRGT button from the DASCON Main Window.
11. ____ DAS operator verifies the GRGT Main Window, Exhibit B.1-29, is opened.

Comments

D.1.11.7. Power On GRGT IBUG-1

Procedures

1. ____ DAS operator powers on the GRGT IBUG-1, by TBD.
2. ____ DAS operator verifies the GRGT IBUG-1 BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the IBUG-1 Power LED is lit.
4. ____ DAS operator verifies the six IBU Built-In-Test (BIT) LEDs turn yellow.
5. ____ DAS operator verifies the six IBU Fault LEDs are extinguished.

Comments

D.1.11.8. Observe GRGT IBUG Status

Procedures

1. ____ DAS operator selects the IBUG/ICON button from the GRGT Main Window.
2. ____ DAS operator verifies the GRGT ICON/IBUG Window, Exhibit B.1-21, is opened.
3. ____ DAS operator verifies the GRGT ICON has a good status on the GRGT ICON/IBUG Window.
4. ____ DAS operator verifies GRGT IBUG-1 has a good status on the GRGT ICON/IBUG Window.
5. ____ DAS operator observes the ICON Main Window.
6. ____ DAS operator verifies GRGT IBUG-1 has a good status on the ICON Main Window.

Comments

D.1.11.9. Execute GRGT DCON

Procedures

1. ____ DAS operator double clicks (using the mouse) on the DCON GUI icon on the Windows NT desktop.
2. ____ DAS operator verifies the DCON GUI is started.
3. ____ DAS operator minimizes the DCON GUI by selecting the minimize button from the upper right hand corner of the DCON GUI.
4. ____ DAS operator double clicks on the DCON Backend icon on the Windows NT desktop.
5. ____ DAS operator verifies the Windows Command Window is opened.

6. ____ DAS operator displays the DCON GUI, by selecting the DCON GUI bar from the Windows application panel.
7. ____ DAS operator verifies the DCON GUI is displayed on the DCON LCM (monitor).
8. ____ DAS operator verifies the incremental start-up status of the DCON backend is noted on the DCON GUI alert panel.
9. ____ DAS operator verifies the DCON Software Built-In-Self Test (BIST) is executed, by observing the TBD alert on the DCON GUI alert panel.
10. ____ DAS operator selects the GRGT button from the DASCON Main Window.
11. ____ DAS operator verifies the GRGT Main Window is opened.

Comments

D.1.11.10. Power On GRGT IF Switch

Procedures

1. ____ DAS operator powers on the GRGT IF Switch, by TBD.
2. ____ DAS operator verifies the GRGT IF Switch BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the GRGT IF Switch Power LED is lit.
4. ____ DAS operator verifies the GRGT IF Switch has a good (green) status on the GRGT Main Window.

Comments

D.1.11.11. Observe GRGT IF Switch Status

Procedures

1. ____ DAS operator views the GRGT Main Window.
2. ____ DAS operator verifies the GRGT IF Switch has a good status, highlighted green.
3. ____ DAS operator views the DCON Main Window, Exhibit B.4-2.
4. ____ DAS operator verifies the GRGT IF Switch has a good status.

Comments

D.1.11.12. Power On GRGT DMG-1

Procedures

1. ____ DAS operator powers on the GRGT DMG-1, by TBD.
2. ____ DAS operator verifies the GRGT DMG-1 BIST is executed, by observing the TBD message on the FPD.
3. ____ DAS operator verifies the DMG-1 Power LED is lit.

Comments

D.1.11.13. Observe WSGT DMG Status

Procedures

1. ____ DAS operator selects the DMG/DCON button from the GRGT Main Window.
2. ____ DAS operator verifies the GRGT DMG/DCON Window, Exhibit B.1-22, is opened.
3. ____ DAS operator verifies the GRGT DCON has a good status on the GRGT DMG/DCON Window.
4. ____ DAS operator verifies DMG-1 has a good status on the GRGT DMG/DCON Window.
5. ____ DAS operator observes the DCON Main Window.
6. ____ DAS operator verifies DMG-1 has a good status on the DCON Main Window.

Comments

Operator Initial _____ *Date* _____ *QA Initial* _____ *Date* _____

D.2 DASCON DATABASE TABLES

Table Name	*Table Parameters*	*Initial Parameter Value*
Account_Parameters	TBD	TBD
Customer_Config_DataSets	Db_Config_ID	N/A
	Db_Customer_ID	N/A
	Db_Data_Rate	N/A
	Db_Dest_IP_Add	xxx.xxx.xxx.xxx
	Db_Dest_Port_No	TBD
	Db_Ground_Term	N/A

	Db_Min_Duration	N/A
	Db_Minus_Tolerance	N/A
	Db_Plus_Tolerance	N/A
	Db_SerEnd_Julian	N/A
	Db_SerStart_Julian	N/A
	Db_Service_Enddate	N/A
	Db_Service_Startdate	N/A
	Db_Storage_Duration	N/A
Customer_Dedicated_Resource	Db_Customer_ID	N/A
	Db_DMG_GC	N/A
	Db_DMG_Number	N/A
	Db_DMU_Number	N/A
	Db_IBU_Number	N/A
	Db_IBUG_GC	N/A
	Db_IBUG_Number	N/A
	Db_Service_Privilege	N/A
Customer_Ephemeris_Detail	Db_CS_Latitude	N/A
	Db_CS_Longitude	N/A
	Db_Customer_ID	N/A
	Db_Cust_Target_Type	N/A
	Db_X_Coordinate	N/A
	Db_X_Velocity	N/A
	Db_Y_Coordinate	N/A
	Db_Y_Velocity	N/A
	Db_Z_Coordinate	N/A
	Db_Z_Velocity	N/A
Customer_Interface_Detail	Db_Customer_Add	N/A
	Db_Customer_ID	N/A
	Db_Customer_Name	N/A
Equip_Config_Status	Db_Currently_Allocated	TBD
	Db_Mission_ID	N/A
	Db_Resource_ID	N/A
	Db_Resource_Name	N/A
	Db_Status	N/A
Return_Data_File_Detail	Db_File_Name	TBD
	Db_File_Size	N/A
	Db_Mission_ID	N/A
	Db_Event_StartTime	N/A
	Db_Event_EndTime	N/A
Service_Config_DataSets	Db_Data_Rate	N/A
	Db_Data_Type	N/A
	Db_Dest_IP_Add	xxx.xxx.xxx.xxx
	Db_Dest_Port_No	TBD

	Db_Ground_Term	N/A
	Db_Min_Duration	N/A
	Db_Minus_Tolerance	N/A
	Db_Mission_ID	N/A
	Db_Plus_Tolerance	N/A
	Db_Service_Enddate	N/A
	Db_Service_Startdate	N/A
	Db_SerEnd_Julian	N/A
	Db_SerStart_Julian	N/A
	Db_Storage_Duration	N/A
	Db_TDRS_ID	N/A
Service_Detail	Db_Config_ID	N/A
	Db_Customer_ID	N/A
	Db_Mission_ID	N/A
	Db_Status	N/A
TDRSS_Detail	Db_EMC_ID	N/A
	Db_TDRS_ID	N/A
	Db_TDRS_X_Coord	N/A
	Db_TDRS_X_Vel	N/A
	Db_TDRS_Y_Coord	N/A
	Db_TDRS_Y_Vel	N/A
	Db_TDRS_Z_Coord	N/A
	Db_TDRS_Z_Vel	N/A

Exhibit D.2-1: DASCON Database Table

D.3 ICON DATABASE

A set of the ICON Databases are set for IBUGs. Up to 10 IBUGs can reside at the DAS Ground Terminals. The databases used by the IBUGs are denoted with the last character of the Database Name as '**X**'. The '**X**' represents the IBUG IDs of 1 to 10. For example ICONDatabase**X** is repeated for each IBUG, and the actual database names are 'ICONDatabase1 (IBUG-1), ICONDatabase2 (IBUG-2,…,ICONDatabase10 (IBUG-10).

Database Name	***Database Message (Table)***	***Database Parameter***	***Initial Parameter Value***
ICONDatabase**X**	User Direction Cosines Data	Record Number	N/A
		Read/Write Flag	N/A
		IBU Specified	N/A
		User Direction Cosines - Alpha	N/A
		User Direction Cosines - Beta	N/A
		User Direction Cosines - Gamma	N/A
	IBUG Control Data	Record Number	N/A
		Read/Write Flag	N/A
		IBU Specified	N/A

	Reset Option	N/A
	FCRX Failover	N/A
	FCRX Select	N/A
	IBU Mode	N/A
	IBUG Mode	N/A
User/TDRS State Vector Data	Record Number	N/A
	Reset Flag	N/A
	IBU Specified	N/A
	IBU1 Dir. Cos. Mode	N/A
	IBU2 Dir. Cos. Mode	N/A
	IBU3 Dir. Cos. Mode	N/A
	IBU4 Dir. Cos. Mode	N/A
	IBU5 Dir. Cos. Mode	N/A
	IBU6 Dir. Cos. Mode	N/A
	User Pos. Vec. X	N/A
	User Pos. Vec. Y	N/A
	User Pos. Vec. Z	N/A
	User Vel. Vec X	N/A
	User Vel. Vec. Y	N/A
	User Vel. Vec. Z	N/A
	TDRS Pos. Vec. X	N/A
	TDRS Pos. Vec. Y	N/A
	TDRS Pos. Vec. Z	N/A
	TDRS Vel. Vec. X	N/A
	TDRS Vel. Vec Y	N/A
	TDRS Vel. Vec Z	N/A
	Latitude	N/A
	Longitude	N/A
	Latitude Direction	N/A
	Longitude Direction	N/A
	Initial Time	N/A
Fixed Weight Data	Record Number	N/A
	Read/Write Flag	N/A
	IBU Specified	N/A
	Weight 1	N/A
	Weight 2	N/A
	Weight 3	N/A
	Weight 4	N/A
	Weight 5	N/A
	.	
	.	
	.	
	Weight 28	N/A

		Weight 29	N/A
		Weight 30	N/A
	Report Request	Record Number	N/A
		Read/Write Flag	N/A
		Report Type	N/A
		IBU Specified	N/A
	IBUG Weight Report	Record Number	N/A
		Time Stamp	N/A
		IBU Specified	N/A
		Weight 1	N/A
		Weight 2	N/A
		Weight 3	N/A
		Weight 4	N/A
		Weight 5	N/A
		.	
		.	
		.	
		Weight 28	N/A
		Weight 29	N/A
		Weight 30	N/A
	IBUG IP Address Table	Record Number	N/A
		IBUG IP Address	xxx.xxx.xxx.xxx
ICONReportDatabase**X**	IBUG Report	Record Number	N/A
		Time Stamp	N/A
		Operating Mode	N/A
		EMC Interf. Stat.	N/A
		IBUG Local/Remote Status	N/A
		FCRX Present	N/A
		FCRX Primary	N/A
		Global Element Status	N/A
		IBUG Alarm	N/A
		IBU 1 Mode	N/A
		Local Element Status for IBU 1	N/A
		IBU 2 Mode	N/A
		Local Element Status for IBU 2	N/A
		IBU 3 Mode	N/A
		Local Element Status for IBU 3	N/A
		IBU 4 Mode	N/A
		Local Element Status for IBU 4	N/A
		IBU 5 Mode	N/A
		Local Element Status for IBU 5	N/A
		IBU 6 Mode	N/A
		Local Element Status for IBU 6	N/A

		Hardware Stat.	N/A
	IBUG Extended Report	Record Number	N/A
		Time Stamp	N/A
		EMC Element Stat.	N/A
		Hardware Stat.	N/A
		Software Stat.	N/A
		IBU1 & IBU2 Errors	N/A
		IBU3 & IBU4 Errors	N/A
		IBU5 & IBU6 Errors	N/A
		Summer Arithmetic Overflow	N/A
		IBU1 Temperature	N/A
		IBU2 Temperature	N/A
		IBU3 Temperature	N/A
		IBU4 Temperature	N/A
		IBU5 Temperature	N/A
		IBU6 Temperature	N/A
ICONDatabase11	FOSwitch Command	Record Number	N/A
		Read/Write Flag	N/A
		EMC Number	N/A
		IBUG Number	N/A
	FOSwitch Report Request	Record Number	N/A
		Read/Write Flag	N/A
		Report Type	N/A
	FOSwitch IP Address	Record Number	N/A
		FOSwitch IP Address	xxx.xxx.xxx.xxx
ICONReportDatabase11	FOSwitch Report	Record Number	N/A
		Time Stamp	N/A
		FO_CDB Fault	N/A
		Temperature	N/A
		IBUG1 Connection Point	N/A
		IBUG2 Connection Point	N/A
		IBUG3 Connection Point	N/A
		IBUG4 Connection Point	N/A
		IBUG5 Connection Point	N/A
		IBUG6 Connection Point	N/A
		IBUG7 Connection Point	N/A
		IBUG8 Connection Point	N/A
		IBUG9 Connection Point	N/A
		IBUG10 Connection Point	N/A
	FOSwitch Extended Report	Record Number	N/A
		Time Stamp	N/A
		NTS1 Signal Port Connection	N/A
		NTS1 Signal Detection	N/A

		NTS2 Signal Port Connection	N/A
		NTS2 Signal Detection	N/A
		NTS1 Status	N/A
		NTS2 Status	N/A
		Keypad/Display Status	N/A
		I/O PMC Status	N/A
		MCP750 Status	N/A
		CDB Switch Console Status	N/A
		Port Status	N/A
ICONDatabase12	DASCON IP Address	Record Number	N/A
		DASCON IP Address	xxx.xxx.xxx.xxx
	IBUG EMC Connection	Record Number	N/A
		EMC For IBUG 1	N/A
		EMC For IBUG 2	N/A
		EMC For IBUG 3	N/A
		EMC For IBUG 4	N/A
		EMC For IBUG 5	N/A
		EMC For IBUG 6	N/A
		EMC For IBUG 7	N/A
		EMC For IBUG 8	N/A
		EMC For IBUG 9	N/A
		EMC For IBUG 10	N/A

Exhibit D.3-1: ICON Database Table

D.4 DCON DATABASE TABLES

A set of the DCON Databases are set for DMGs. Up to 8 DMGs can reside at the DAS Ground Terminals. The databases used by the DMG are denoted with the character of the Database Name as '**n**'. The '**n**' represents the DMG IDs of 1 to 8. For example DMG_n_Command.mdb is repeated for each DMG, and the actual database names are 'DMG_1_Command.mdb (DMG-1), DMG_2_Command.mdb (DMG-2),…,DMG_8_Command.mdb (DMG-8).

Database Name	***Database Message (Table)***	***Database Parameters***	***Initial Parameter Values***
DMG_n_Command.mdb	DMUParameters	RecordNumber	N/A
		DMUNumber	N/A
		PortNumber	N/A
		RegASeed	N/A
		RegCSeed	N/A
		BPS	N/A
		Modulation	N/A
		G2Inversion	N/A
		SymbolFormat	N/A

		DataFormat	N/A
		CarrierModeAB	N/A
		CarrierOffset	N/A
	Doppler	RecordNumber	N/A
		TimeStamp	N/A
		DMU1Frequency	N/A
		DMU1Rate	N/A
		DMU2Frequency	N/A
		DMU2Rate	N/A
		DMU3Frequency	N/A
		DMU3Rate	N/A
		DMU4Frequency	N/A
		DMU4Rate	N/A
		DMU5Frequency	N/A
		DMU5Rate	N/A
		DMU6Frequency	N/A
		DMU6Rate	N/A
		DMU7Frequency	N/A
		DMU7Rate	N/A
		DMU8Frequency	N/A
		DMU8Rate	N/A
	Commands	RecordNumber	N/A
		CommandType	N/A
		CommandData	N/A
		NumBytes	N/A
		CommandSource	N/A
DMG_n_Report.mdb	Report	Record Number	N/A
		Time Stamp	N/A
		DSER IP Address	xxx.xxx.xxx.xxx
		DMG Operating Mode	N/A
		DMG Alert	N/A
		DMG Control Mode	N/A
		S/W Status	N/A
		DMU Present	N/A
		DMU Alert	N/A
		DPM Mode	N/A
	ExtReport	Record Number	N/A
		Time Stamp	N/A
		DMU Number	N/A
		DMU H/W Status	N/A
		Acquisition Time	N/A
		Loss of Lock	N/A
		Eb/N0	N/A

		Symbol Rate Estimate	N/A
		Chip Rate Estimate	N/A
		Data Rate Estimate	N/A
		Carrier Frequency Estimate	N/A
DCON_Report.mdb	Report	Record Number	N/A
		Time Stamp	N/A
		DCON Status	N/A
		IF Switch Status	N/A
		IF Switch Interface Status	N/A
		Temp Monitor Interface Status	N/A
		DMG Present	N/A
		DMG Alert	N/A
		DMG Control Mode	N/A
		DMG Interface Status	N/A
		DMG Operating Mode	N/A
		DMG Mode	N/A
		Rack Present	N/A
		Rack Temperature Alert	N/A
		Rack Temperature Warning	N/A
		Rack 1 Temperature	N/A
		Rack 2 Temperature	N/A
		Rack 3 Temperature	N/A
		Rack 4 Temperature	N/A
		Rack 5 Temperature	N/A
		Rack 6 Temperature	N/A
		Rack 7 Temperature	N/A
		Rack 8 Temperature	N/A
	ExtReport	Record Number	N/A
		Time Stamp	N/A
		DMG Number	N/A
		DMU Present	N/A
		DMU Alert	N/A
		DMU Mode	N/A
		DMU 1 Recovered Carrier Freq	N/A
		DMU 2 Recovered Carrier Freq	N/A
		DMU 3 Recovered Carrier Freq	N/A
		DMU 4 Recovered Carrier Freq	N/A
		DMU 5 Recovered Carrier Freq	N/A
		DMU 6 Recovered Carrier Freq	N/A
		DMU 7 Recovered Carrier Freq	N/A
		DMU 8 Recovered Carrier Freq	N/A
		DMU 1 Estimate Eb/N0	N/A
		DMU 2 Estimate Eb/N0	N/A

		DMU 3 Estimate Eb/N0	N/A
		DMU 4 Estimate Eb/N0	N/A
		DMU 5 Estimate Eb/N0	N/A
		DMU 6 Estimate Eb/N0	N/A
		DMU 7 Estimate Eb/N0	N/A
		DMU 8 Estimate Eb/N0	N/A
		Signal Detected	N/A
		Lock Status	N/A
IF_Command.mdb	Commands	Record Number	N/A
		IBUG Number	N/A
		IBU Number	N/A
		DMG Number	N/A
		DMU Number	N/A
		Type	N/A
		Command Source	N/A
DCON_Current_config.mdb	DMGnCommands	RecordNumber	TBD
		TimeStamp	TBD
		DMUNumber	TBD
		PortNumber	TBD
		RegASeed	TBD
		RegCSeed	TBD
		BPS	TBD
		Modulation	TBD
		G2Inversion	TBD
		SymbolFormat	TBD
		DataFormat	TBD
		CarrierModeAB	TBD
		CarrierOffset	TBD
	IPAddress	Record Number	N/A
		Time Stamp	N/A
		DMG 1 IP Address	xxx.xxx.xxx.xxx
		DMG 2 IP Address	xxx.xxx.xxx.xxx
		DMG 3 IP Address	xxx.xxx.xxx.xxx
		DMG 4 IP Address	xxx.xxx.xxx.xxx
		DMG 5 IP Address	xxx.xxx.xxx.xxx
		DMG 6 IP Address	xxx.xxx.xxx.xxx
		DMG 7 IP Address	xxx.xxx.xxx.xxx
		DMG 8 IP Address	xxx.xxx.xxx.xxx
		DAS IP Address	xxx.xxx.xxx.xxx
	TDRSVector	Record Number	N/A
		Time Stamp	N/A
		TDRS ID	N/A
		TDRS X	N/A

		TDRS Y	N/A
		TDRS Z	N/A
		TDRS VX	N/A
		TDRS VY	N/A
		TDRS VZ	N/A
	CustomerVector	Record Number	N/A
		Time Stamp	N/A
		DMG Number	N/A
		DMU Number	N/A
		TDRSid	N/A
		Cust_X	N/A
		Cust_Y	N/A
		Cust_Z	N/A
		Cust_VX	N/A
		Cust_VY	N/A
		Cust_VZ	N/A
	IFConnections	Record Number	N/A
		Time Stamp	N/A
		Output Card Number	TBD
		Port 1	TBD
		Port 2	TBD
		Port 3	TBD
		Port 4	TBD
		Port 5	TBD
		Port 6	TBD
		Port 7	TBD
		Port 8	TBD

Exhibit D.4-1: DCON Database Table

D.5 ECON DATABASE TABLES

Database Name	*Database Message (Table)*	*Database Parameters*	*Initial Parameters Values*
ECONDatabase	Command	Flag	N/A
		Calibration Mode	N/A
		Reset Option	N/A
		Clock Select	N/A
		HDCL Select	N/A
		EMC Mode	N/A
		TDRS ID	N/A
		PN Code	N/A
		Operator Element	N/A
	EMCReportRequest	Flag	N/A

		Report Type	N/A
	EMCArrayCalibration	Reset Flag	TBD
		IOS Time	TBD
		Cosines Mode	TBD
		Cal. Source latitude direction	TBD
		Cal. Source longitude direction	TBD
		Cal. Source Latitude	TBD
		Cal. Source Longitude	TBD
		TDRS Position Vector X	TBD
		TDRS position Vector Y	TBD
		TDRS Position Vector Z	TBD
		TDRS Velocity Vector X	TBD
		TDRS Velocity Vector Y	TBD
		TDRS Velocity Vector Z	TBD
	EMCArrayCalibrationUpdate	IOS Time	N/A
		Cal. Source Latitude	N/A
		Cal. Source Longitude	N/A
		TDRS Position Vector X	N/A
		TDRS Position Vector Y	N/A
		TDRS Position Vector Z	N/A
		TDRS Velocity Vector X	N/A
		TDRS Velocity Vector Y	N/A
		TDRS Velocity Vector Z	N/A
	EMCUserDirCosines	Flag	N/A
		User Direction Cosines -Alpha	N/A
		User Direction Cosines - Beta	N/A
		User Direction Cosines - Gamma	N/A
	IPAddress	EMC IP Address	xxx.xxx.xxx.xxx
		DAS IP Address	xxx.xxx.xxx.xxx
ECONArchieveDatabase	EMCReport	Timestamp	N/A
		Operating Mode	N/A
		Calibration Mode	N/A
		HDCL A Selection	N/A
		HDCL B Selection	N/A
		EMC Mode	N/A
		TDRSID	N/A
		PN Code	N/A
		PN Status	N/A
		Clock A Selection	N/A
		Clock B Selection	N/A
		Local Clock	N/A
		Element Status	N/A
		EMC Alert	N/A

		Hardware Status	N/A
	EMCExtReport	Timestamp	N/A
		Operator Specified TDRS Elem. Status	N/A
		Element Parity (Upper Bytes)	N/A
		Element Parity (Lower Bytes)	N/A
		Element Activity Monitor	N/A
		Element Delay FIFO	N/A
		EMC Node Status	N/A
		Element Signal Processor Status	N/A
		Self Calibration	N/A
		Hardware Status	N/A
		Node Low Level Status	N/A
		Node Card 1 Temperature	N/A
		Node Card 2 Temperature	N/A
		Node Card 3 Temperature	N/A
		Node Card 4 Temperature	N/A
		Node Card 5 Temperature	N/A
		Software Status	N/A
		HDCL A Status	N/A
		HDCL B Status	N/A
ECONArchieveEmptyDatabase	EMCReport	Timestamp	N/A
		Operating Mode	N/A
		Calibration Mode	N/A
		HDCL A Selection	N/A
		HDCL B Selection	N/A
		EMC Mode	N/A
		TDRSID	N/A
		PN Code	N/A
		PN Status	N/A
		Clock A Selection	N/A
		Clock B Selection	N/A
		Local Clock	N/A
		Element Status	N/A
		EMC Alert	N/A
		Hardware Status	N/A
	EMCExtReport	Timestamp	N/A
		Operator Specified TDRS Elem. Status	N/A
		Element Parity (Upper Bytes)	N/A
		Element Parity (Lower Bytes)	N/A
		Element Activity Monitor	N/A
		Element Delay FIFO	N/A
		EMC Node Status	N/A
		Element Signal Processor Status	N/A

		Self Calibration	N/A
		Hardware Status	N/A
		Node Low Level Status	N/A
		Node Card 1 Temperature	N/A
		Node Card 2 Temperature	N/A
		Node Card 3 Temperature	N/A
		Node Card 4 Temperature	N/A
		Node Card 5 Temperature	N/A
		Software Status	N/A
		HDCL A Status	N/A
		HDCL B Status	N/A

Exhibit D.5-1: ECON Database Table